DOCUMENT RESUME

ED 137 278 SP 010 919

AUTHOR Law, Bill, Ed.
TITLE "The Impacts of External Constraints on the Institutional Research Function."
PUB DATE Jun 76
NOTE 257p.; Proceedings of the Annual Meeting, Florida Statewide Conference on Institutional Research (9th, Orlando, Florida, June 16-18, 1976)

EDRS PRICE MF-$0.83 HC-$14.05 Plus Postage.
DESCRIPTORS Computer Assisted Instruction; *Conference Reports; Educational Accountability; Educational Legislation; *Educational Research; Educational Testing; Equal Education; *Higher Education; Information Systems; Instructional Improvement; Open Enrollment; Orientation Materials; Program Evaluation; Teacher Salaries
IDENTIFIERS *Florida

ABSTRACT

This document contains seventeen presentations delivered at the ninth annual meeting of the Florida Statewide Conference on Institutional Research. Part one contains: (1) "Your Legislative Session--1976"; (2) "Equal Access/Equal Opportunity: Institutions, Students, Politics, and Fairness"; (3) "The Impact of the Equal Education and Equal Opportunity Movement on Universitites and Their Management Information Systems"; and (4) "A New Caveat: Let the Buyer Be Aware." Part Two, "Delivery Systems," includes the following papers: (1) "Open Learning: Effectiveness of a Computerized Instructional System"; (2) "Program Evaluation in a New University: Results of a Two Year Program"; (3) "A Comparative Study of the Florida Twelfth Grade Test and the College Level Examination Program"; (4) "A Longitudinal Study of the College Level Examination Program and Student Achievement in the State of Florida"; and (5) "Mid-Point Testing Program: Beauty or Beast?" Part Three, "Other Institutional Studies," presents five papers: (1) "The Effectiveness of an Incoming Student Orientation Program"; (2) "The Cost-Income Component of Program Evaluation"; (3) "Instructional Evaluation System"; (4) "Faculty Salary Increases and Evaluation of Selected Performance Variables"; and (5) "The Role of Institutional Research in Instructional Development: The Emergence of a New Model at the University of Florida." Part Four, "Potpourri," contains three papers: (1) "Distribution of First-Time-in-College Students Within the State University System of Florida"; (2) "Identification and Evaluation of Instruments in Institutional Research"; and (3) Regional Learning Needs Assessment: Practices, Pitfalls and Prospects". (MB)

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ED137278

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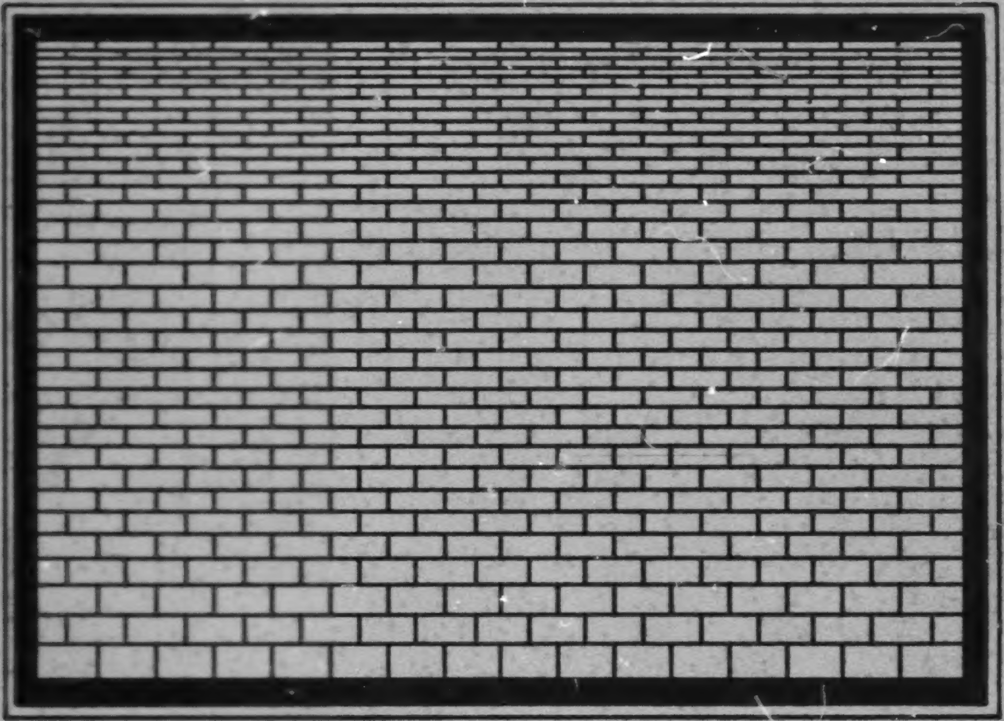

Proceedings of the
Ninth Statewide
Conference on
Institutional Research
1976

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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"THE IMPACT OF EXTERNAL CONSTRAINTS ON THE INSTITUTIONAL RESEARCH FUNCTION"

PROCEEDINGS OF THE NINTH ANNUAL FLORIDA
STATEWIDE CONFERENCE ON INSTITUTIONAL RESEARCH

ORLANDO, FLORIDA
JUNE 16 - 18, 1976

1976 STATEWIDE CONFERENCE

ON

INSTITUTIONAL RESEARCH

"THE IMPACT OF EXTERNAL CONSTRAINTS ON THE INSTITUTIONAL RESEARCH FUNCTION"

Sheraton, Orlando Jetport Inn
Orlando, Florida

June 16-18, 1976

Program Chairman
D. R. Coleman

Local Host
Norris Miner

Arrangements Chairman
James Talmadge

June 16 (Evening Session)

6:00 - 7:00 p.m. **SOCIAL GET-TOGETHER - CASH BAR**

7:05 - 8:00 p.m. **OUTLETS FOR PUBLICATION**
Chairperson - Mr. James Talmadge
Asst. Systems Officer
Seminole Community College

Dr. Charles Hoover
National Inst. Of Education
Office of Dissemination and Resources
Washington, D.C.

June 17

8:30 - 9:00 a.m. **REGISTRATION - FOR THOSE NOT PREREGISTERED**

8:30 - 9:00 a.m. **COST INCOME COMPONENT OF PROGRAM EVALUATION**
Mr. Norris Miner
Director of Management Systems
Seminole Community College

9:00 - 12 noon **LEGISLATIVE EXCHANGE**
Chairperson - Dr. F. Craig Johnson
Professor of Higher Education
Florida State University

Dr. Gus Turnbull
Staff Director
House Education Committee and Associates

GENERAL SESSION

1:00 - 1:15 p.m. **OPENING REMARKS**
Dr. D. R. Coleman
Program Chairman

Mr. Norris Miner
Local Host

1:15 - 1:45 p.m. **INTRODUCTION OF SPEAKER**
Dr. Archie Johnston
Director of Institutional Research
Tallahassee Community College

KEYNOTE ADDRESS - "Impact of Equal Access and Equal Opportunity on Recruitment and Retention"
Dr. Scarvia B. Anderson
Vice Pres. and Director
Educational Testing Service
Atlanta, Georgia

2:00 - 2:40 p.m. **THE IMPACT OF EEO ON MANAGEMENT INFORMATION SYSTEMS**
Chairperson - Dr. J. Howell
Asst. Professor, Office Planning and Analysis
Florida Atlantic University

Dr. Judith Lopez
Coordinator, Institutional Data Administration
Board of Regents

Dr. William R. Odom
Bureau Chief, Research and Information Systems
Division of Community Colleges

2:45 - 4:30 p.m. **EVALUATING INSTITUTIONAL PROGRAMS**
Chairperson - Dr. Gloria Raines
Asst. to the President for
College-Wide Instructional Services
Valencia Community College

1. **A New Caveat: Let the Buyer Be Aware**
Mr. Larry G. Jones
Asst. Director and Specialist
University of Georgia

2. **The Effectiveness of an Incoming Student Orientation Program**
Mr. Thomas Peeples
Scientific Programmer
Florida Technological University

Dr. D. R. Coleman
Director of Institutional
Research and Planning
Florida Technological University

3. **Open Learning: Effectiveness of a Computerized Instructional System**
Dr. J. Terence Kelly
Dean, Open College
Miami-Dade Community College

Dr. Kamala Anadam
Research Specialist
Miami-Dade Community College

4. **Regional Learning Needs Assessment: Practices, Pitfalls, and Prospects**
Dr. I. Bruce Hamilton
Assistant Director
Office of New Degree Programs
Educational Testing Service
Princeton, N. J.

4:30 - 5:00 p.m. **OVERVIEW OF A LONG RANGE PLANNING WORKSHOP**
Mr. A. Robertson
Director of Developmental and Federal Programs
Broward Community College

7:30 - 9:00 p.m. **BANQUET**

INTRODUCTION OF SPEAKER
Dr. John R. Bolte
Assoc. Vice President, Academic Affairs
Florida Technological University

BANQUET SPEAKER
Dr. Roy E. McTarnaghan
Vice Chancellor for Academic Programs
State University System of Florida

June 18

8:00 - 8:25 a.m. **EVALUATION INSTRUMENTS**
Mr. Stephen A. Lewis
Graduate Student
Florida State University

8:30 - 10:00 a.m. **EVALUATION OF NONTRADITIONAL DELIVERY SYSTEMS**
Chairperson - Dr. Jeaninne Webb
Director, Office of Instructional Resources
University of Florida

1. **Program Evaluation in a New University: The Results of a Two-Year Study**
   Dr. Barry Greenberg
   Asst. Director, Office of Institutional Research
   Florida International University
2. **A Comparative Study of the Florida Twelfth Grade Test and the College Level Examination Program**
   Sue Legg, Statistician
   Testing and Evaluation Office
   Office of Instructional Resources
   University of Florida
3. **A Longitudinal Study of the College Level Examination Program and Student Achievement in the State of Florida**
   Dr. John Losak, Director
   Office of Institutional Research
   Miami-Dade Community College
4. **Mid-Point Testing Program: Beauty or Beast?**
   Dr. Jeaninne Webb, Director
   Office of Instructional Resources
   University of Florida

10:30 - 12 noon **A POTPOURRI OF INSTITUTIONAL RESEARCH**
Chairperson - Mr. Norris Miner, Director
Office of Institutional Research
Seminole Community College

1. **Distribution of First-Time-in-College Students Within the State University System**
   Dr. David C. Montgomery
   Research Associate, Planning and Analysis
   State University System
2. **Instructional Evaluation System**
   Mr. David H. Buckley, Chairman
   Math. Department
   Polk Community College
3. **Faculty Salary Increases and Evaluation of Selected Performance Variables**
   Dr. T. Wayne Keene
   Associate Professor, College of Medicine
   University of South Florida
4. **The Role of Institutional Research in Instructional Development: The Emergence of a New Model at the University of Florida**
   Dr. Albert B. Smith
   Associate Professor, College of Education
   University of Florida

12:00 - 12:10 p.m. **WRAP-UP SESSION**

CONTRIBUTORS

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EDITOR'S NOTE

While the publishing of the proceedings of the Statewide Conference on Institutional Research offers an opportunity to demonstrate the vitality of the practitioners and programs within our institutions, the spirit of the conference itself is only minimally displayed on these printed pages. The enthusiasm with which the contributors presented their works to their colleagues, the follow-up of question and answers in formal and informal settings, and the formulation of new insights, notions, and ideas through relaxed professional interaction cannot be captured by this volume.

Similarly, two innovative conference sessions, promulgated by the planning committee, proved to be quite successful to participants although inadequately represented by the published proceedings.

In the first of these sessions, Dr. Charles Hoover of the National Institute of Education reviewed for conference participants the workings of the ERIC (Educational Resources Information Clearinghouse) publications system. The discussion reflected a duality of interest on the part of the institutional researchers: the comprehensive nature of the retrieval system which characterizes ERIC stimulated questioners exploring the potential for enhancements in daily institutional research activities, while at the same time participants were apprised of the relatively easy means which ERIC could provide for disseminating the significant information being produced by virtue of their professional efforts. Although not designed as a primary thrust of the conference program, this "peripheral" session generated sufficient interest to warrant consideration for similar undertakings at future conferences.

As an opening to the principal theme of the conference--external impacts upon institutional research--the planning committee arranged a discussion session which included staff representatives of the education committee of both the Florida Senate and the Florida House of Representatives. Dr. Gus Turnbull, staff director of the Senate Education Committee, and Ms. Jane Hayman, legislative analyst of the House Education Committee, outlined in some depth the results of the 1976 legislative session, drawing attention to the information needs requisite to passing sound legislation. For their part, conference participants expressed their concern over the increasing demand for information of questionable importance which requires both expensive and time-consuming effort on the part of institutional researchers.

By the way, a note of special appreciation is due to Archie Johnston of Tallahassee Community College for his assistance in providing a comprehensive written version of the discussion. (How could he have known that the novice editor would overlook that detail?)

Despite the volatile nature of this never-to-be-resolved dichotomy, the candor and high level discussion which characterized the session allowed all participants to take satisfaction in knowing that their needs, problems, and insights had been successfully conveyed to those who labor "on the other side of the fence."

With these considerations, and in view of the quality efforts contained in this volume, there should be little surprise that we look forward to the Tenth Annual Conference next June.

Bill Law

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Your Legislative Session--1976

Dr. Gus Turnbull, staff director of the Education Committee of the Florida House of Representatives, and Miss Jane Hayman, legislative analyst from the Florida Senate Education Committee, conducted a question and answer session on happenings of the 1976 Florida Legislature. They were introduced by Dr. Craig Johnson of Florida State University and this report is prepared from a series of tapes and notes by Dr. Archie B. Johnston of Tallahassee Community College.

Craig Johnson set the stage with a low-key presentation and a brief background of how the legislative session reflected the education community. Each presenter was asked to give about a 15-minute talk of how he/she saw the session from the legislative floor and some of the back-room politics which led to various legislative decisions. Gus Turnbull spoke first.

"There were a number of interesting bills which never passed, and some of them had dated back for a considerable period of time. They will, more than likely, be back next year, as it nearly always happens that desired legislation may take several years to become law. The process of passing laws interests me greatly, and I find myself almost as much interested in the techniques through which some of these things happen as by the actual substance of what eventually comes out," said Turnbull.

He pointed out that most of the audience are people who are used to the rational process of using data to provide information for specific purposes, and he also expressed an interest in how to get that data to the appropriate agency.

Turnbull offered to toss out several ideas very quickly and asked that if the audience were interested in specific legislation, he would follow through on that.

He mused that perhaps our basic problem is that there very often isn't a legislative interchange and continued, "As I think on the title of our program this morning, it seems that too often we aren't bouncing our ideas off the other party, and as a result there is a real lack of understanding. Part of that is a basic difference between what you and the legislative personnel thought they were talking about during the legislative session. Many different interests come together from very different points of view about the nature of educational enterprise. There's also a very real difference of views, needs and pressures between you and the legislature. Those of you from institutions are naturally advocates of your particular programs, and you understand your program far better than the legislature. On the other hand, the legislature is exposed to many different interpretations, of which yours is only one.

"You find it very hard to expand programs, or in these days just to stand still by running very fast, what with double-digit inflation, enrollment caps, the soaring cost of enrollment and the very little increase in dollars. On the other hand, legislators are faced with similar demands from every element of state government. They are faced with very persuasive arguments as to why each program should be expanded even in this time of economic recession and inflation. They obviously have to listen to only one agency and forget all the others or treat them all equally by cutting them back, or make the pie bigger by raising taxes.

"This session we found out about the pressure against raising taxes from the people back home. The legislators listened to them, not to the agency advocates. The message was coming through fairly logically and clearly that people did not want to be taxed.

"Looking specifically at education, there are some very real differences in the concept of how education should be governed. On the proper role of the legislature and the proper role of educators, parents, students, and the public at large, there is not a consensus. Perhaps at one time there was. In Florida more than in other states we have had, I think, a much greater tradition of (I'll have to use the word) political 'interference.' No, let me change that to political 'involvement' in education. In Georgia, for example, there is a different attitude, as illustrated in the political campaign now going on in Athens, where a candidate for the state legislature involved himself in a university issue. He was promptly jumped upon by the other candidates who said that it was totally out-of-bounds for a legislative candidate to involve himself in the internal affairs of the university system. We have seen in Florida, over the years, a large variety of Florida legislators and other government officials who have involved themselves very deeply in the internal affairs of the universities and the junior colleges. There is not only a difference between the states but a difference of viewpoints from within the state as to how and in what way government should become involved in educational decisions.

"Be that as it may, every active group is concerned with winning support, but the process is not always clear. A little example that you may have noticed is the problem of increasing tuition this year. The university presidents were unanimously against fee raises and almost every legislator spoke out against raising tuition, but somehow tuition got raised.

"There is also a concern with conflicting values which we've seen highlighted in some special legislation. The conflict this year which became probably the most heated topic in educational legislation was the idea of using a lottery in a graduate admission process--absolute merit versus relative merit. Then there are some continuing and very real administrative policy problems: how do you govern a nine-campus university system? How do you govern 28 community colleges? And what happens when the legislators are faced with these two very different managerial structures? In trying to react to them, they face many of the same problems in two different systems with very different structures.

"The legislature is, of course, very concerned with the cost of academic programs. How do you balance the part of the income, which comes from everybody, with the benefit that the individual students are getting? How much should the students themselves pay? There is a very real lack of solid information; there is a very sparse amount of evidence as to what is actually happening out there in the institutions. The problems resulting can be resolved partly by legislation and partly by efforts of groups like this. A visible sign of progress is the whole managerial approach to government of education and information systems.

"Now, given all these differences and problems and concerns, I think that in order for either party to communicate with the other, we need to become much more familiar with each other's processes. Both of us tend to think that the other is in possession of a "white box" where we put the problems in one end and the answer comes out the other. Yet within that "box" is a whole host of strange and wonderful inter-relationships.

"In this last session the Education Committee had over 200 bills to worry about. The impact of particular personalities and the power of individuals and structures within the legislature are vital in determining which bills finally get onto the floor. The values held by the individuals that serve these committees are important. It was no accident, for example, that a large number of education bills were never actually heard. There was a definite feeling against passing a lot of education bills. At least we on the House side (and I don't want to put Jane on the spot by asking her to comment on it) heard this time last year that in 1976 there wouldn't be much educational legislation because the Senate's tired of it. The rumors were true. Some 35 bills which had passed the House, after going through our committee, died in the Senate, not because they were voted down, but because they were never heard.

"One has to understand such details to understand the process; likewise those of us on the legislative side who look to the educational community and expect to get simple answers are going to be surprised. We discover fairly quickly that there may be a university system, but there are still several different points of view within that system. And then there are 28 community colleges which don't pretend to be a system, although the legislature sometimes tries to treat them that way. Understanding the educational process is as much or more difficult than understanding the legislative process.

"I think another thing we've got to do if we're going to communicate effectively is to gain some confidence in each other as individuals and as institutions. Too often there is a tendency to draw a mental image of the other and react to that image instead of to reality.

"To shift back to the educators' side, on a long range basis one must do a good job of impressing the students. A lot of the negative reaction which education has experienced with the legislature comes directly from students. Students who have graduated and gone on to become legislators themselves, or aides or committee staff members, go back to specific things which happened to them as they went through that educational process. Often these were things that they didn't like, and now they are suddenly in a position to express themselves and have an impact. In addition, the student lobby as such is becoming active. In some respects they've had a better success ratio than the professional educational lobby.

"Another important part of communication is to learn how to state our differences objectively, without getting into a personality conflict. We have to understand the reasons why viewpoints, and particularly those coming from different perspectives, are going to differ. It doesn't mean that either side is banal or corrupt or immoral or even stupid. There is a tendency, perhaps more on the academic side than on the legislative side, to assume that because the individual has taken a negative side that he must be a bad person. Consequently, we can't trust him or work with him. Yet good legislators and good lawyers disagree very intensely and profoundly on an issue and then they turn around the next day and work together on a different issue. These differences on the issues do not detract from their personal relationships. In order to work with the legislators you need to develop this approach.

"Perhaps the last thing I should mention in dealing with improved communications is one that that is particularly appropriate for this group, and that's providing accurate information in a timely fashion. That's something that is very important. Really the easiest way of all to earn the confidence of the other party is to provide an accurate answer to a question very quickly. Having done this three or four times you can get away with almost anything. But quite frankly, the record of the educational community to being responsive to this kind of data request is not very good."

* * *

EQUAL ACCESS/EQUAL OPPORTUNITY: INSTITUTIONS, STUDENTS, POLITICS, AND FAIRNESS

Scarvia B. Anderson
Educational Testing Service

Presented at the Florida Invitational
Conference on Institutional Research

Orlando, Florida
June 17-18, 1976

EA/EO: INSTITUTIONS, STUDENTS, POLITICS, AND FAIRNESS*

Scarvia B. Anderson

Educational Testing Service

4/12/76 - An end to open admissions...was approved last week by the governing board of the City University of New York (Magarrell, 1976b, p.5).

3/29/76 - In Florida's 28 community colleges, the traditional "open door" has closed. College officials estimate that 5,000 qualified students have been turned away since last fall (Magarrell, 1976a, p.9).

12/22/75 - For the poor, access to California's four-year public colleges "remains very limited," according to a new legislative study (Sievert, 1975, p.13).

11/3/75 - At the Champaign-Urbana campus of the University of Illinois, enrollment for the spring term has been closed in an effort to reduce total enrollment by 1,000 students (Magarrell, 1975a, p.1).

11/3/75 - Campuses using oil and natural gas are warned they can expect unit price to have quadrupled since 1969-70 (Magarrell, 1975b, p.8).

Thus does The Chronicle of Higher Education chronicle some of the conditions that are causing educators and legislators to take a new look at the concept of "equal access/equal opportunity." Social scientists (e.g., Dressel, 1976; Willingham, 1974; Messick, Note 1), for their part, are examining the fundamental relationships among equity to students, adverse impact on specific population groups, institutional and program efficiency, and benefits and risks to society. And discovering some basic incompatibilities, as we shall see.

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*Keynote address, Ninth Annual Florida Statewide Conference on Institutional Research, Orlando, Florida, June 17-18, 1976. I am grateful to William I. Sauser, Jr., for help with the documentation for this paper.

The reminders are dramatic that this is a multivariate world--including the segment called "higher education"--and univariate models, principles, or slogans lead to disappointment and dismay.

Institutional Purposes

Let us begin by looking at student access and opportunity in relationship to the nature of the college or university. The major issues here revolve around the question of "how closely the goals of [higher] education should be shaped by the requirements of the job market" or, as Manning (Note 2) has put it, "to what extent is education little more than job training puffed up with a great deal of windy, vague and high sounding rhetoric." (p.16). On one hand, we have what might be characterized as a classical view of higher education--a knowledge-oriented view. According to Ebel (Note 3):

> Excellence in education...is primarily excellence in learning. What is learned is mainly verbal knowledge. Knowledge is assimilated information....The power of knowledge in human affairs is so plain, and attempts to cultivate it are so pervasive in the enterprise that the failure of some educators to acknowledge its primacy is hard to understand.

Then Ebel goes on to ask why such acknowledgment from educators is lacking:

> Is it because they see that the possession of knowledge does not guarantee wisdom or virtue (or success in the job) in all who seem to possess it?
>
> Is it because the pursuit of knowledge has been the traditional focus of educational efforts and they want to break new ground?
>
> Is it because knowledge is often hard to gain, and they are looking for something that is easier and more fun to do?
>
> Is it because these educators have had something less than remarkable success in getting possession of much of it?

Even among those who accept the primacy of knowledge in the higher education enterprise, there is some disagreement about direction. For example, Kreps (Note 4) has said that "small liberal arts colleges are characterized by disseminating knowledge and universities by generating knowledge."

To knowledge, Bok (1974) and others (e.g., Dressell and Mayhew, 1954; Mattfield, 1974; Muller, 1974) have added other important objectives of higher education including "acquisition of skills and habits of thought--such things as the ability to write effectively, to read with comprehension, to analyze problems,...to understand quantitative methods...and, indeed, even to understand an academic discipline sufficiently well as to gain a sense of what it means to master at least one subject in depth" (Manning, Note 2, p.21).

As we mention skills areas we are getting closer to the focus of some of the postsecondary programs that some think are better characterized as training than as education. At one extreme, as Manning (Note 2) has pointed out, administrators may turn "to the Dictionary of Occupational Titles for the significant principles that should guide higher education programs" and describe the products of their institutions as "trained manpower, rather than educated people" (p.22).

If we look at an April 26 article in Newsweek (Sheils, McGee, Boyd, & Monroe, 1976), we find Boston University president John Silber saying, "It's about time we got off the backs of youngsters who don't have the aptitude for college or the interest in it" (p.64). This statement is offered in support of the general proposition that "the growing respectability of alternatives to college is viewed by most educators as a healthy development" (p.64). "On the other hand," the Newsweek authors note, "many are deeply disturbed by the capitulation to careerism on college and university campuses" (p.64). "The inordinate pursuit of professionalism leads to much narrow-minded bigotry," says Father Daniel O'Connell, president of St. Louis University. "The word in German is accurate and applicable," he continues. "It is Fachidioten--specialty idiots" (p.64). Dean Rosovsky of the Harvard Faculty of Arts and Sciences sums up some of the confusion this way: "Every year at graduation, we say 'We welcome you to the community of educated men and women.' This should mean something, but at the moment it doesn't mean anything. It may mean that you've designed your own curriculum, it may mean that you know all about urban this or rural that. But there is no longer a common denominator" (p.64).

William Turnbull (Note 5), president of ETS, in a discussion of admission standards in higher education, introduced what he calls "the fallacy of higher education as monolith--the fallacy that there is a common set of standards accepted in American higher education" (p.14). Not only must we agree with Turnbull that American higher education lacks a common set of standards, but it is clear that it lacks a common set of educational goals and objectives as well. I, personally, think that this is sensible--and sensitive to the needs of a changing society. However, we are obviously not going to resolve the debate about the purposes of higher education--multiple or otherwise--here. What we must recognize is that existing variations in goals and standards for higher education have their counterparts in variations in the meaning of equal access/equal opportunity. At the most pragmatic level, we cannot determine, for example, whether an open admissions program has achieved success unless, in Trivett's (1976) words, "prior agreement is reached on the purposes served by that program" (p.3).

But there is a more fundamental problem: How can institutions fairly offer access and opportunity if they cannot provide prospective students with a clear definition of what the access is to and the opportunity is for? In this age of "consumer protection" when we insist on publishing the ingredients of pet foods and warning of the hazards of cigarettes, our catalogs provide a very incomplete, and frequently misleading, picture of what going to college will really be like. And this is especially true for students whose family dinner conversations have not included discussions of what college was like for mama, papa, or older sisters and brothers. In fact, the percentage of "middle-class males who are opting for traditional higher education has dropped from 44 percent in 1969 to 33 percent this year--and most of the dropouts are white" (Sheils et al., 1976, p.61). But this new realism does not seem to be equally matched in other population groups which still see college primarily as the great door opener. Again according to Newsweek, "working-class whites and blacks continue to see college as the only open window to the better life [we're mixing our metaphors on modes of egress here!], and women see degrees as essential if they are to have careers" (p.61).

Student Characteristics

So equal access and equal opportunity are student-confounded as well as program-confounded concepts. Let's look specifically at some of the characteristics of students that may--or should--influence access/opportunity policies, as well as at the way those policies may have a differential impact on different students. I have already mentioned one important student characteristic that suggests different approaches to recruitment and retention--that is, student expectations both about what higher education is like and what purpose it will serve in their lives.

I have enjoyed talking with Frederick W. (Bill) Schutz (Note 6) who, among other things, spearheads the affirmative action program for engineering students at Georgia Institute of Technology. By any objective standards, Schutz's program can be called a success. For example, the increase in both numbers and retention rate for Tech engineering students who are female, from minority groups, and even from states other than Georgia must greatly exceed anything that an "old grad" could envision. A great deal of Schutz's strategy is based on either changing the expectations of potential students or helping to bring them into line with reality. First, he says, he has to find students who have taken courses that provide relevant background for the engineering courses Tech offers. That part is relatively easy, and he starts with such rosters as those provided by the National Society of Professional Engineers' Minority Engineering Education Effort and the College Board Student Search Service, as well as specific referrals. But then, having identified likely candidates, he has to convince some of them that it's worth the extra effort engineering school requires and others that they're more frightened of engineering school than they need to be. A challenging problem of diagnosis and treatment! Furthermore, when the recruitment process begins depends on the sex of the candidate. Girls and--I hate to repeat what Schutz says here--especially Southern girls frequently need to be convinced that being good in math is OK and a career in science or technology is a possibility for them, and they need to receive these messages no later than the 8th or 9th grade. [Julian Stanley (Note 7) makes this same point with respect to girls in his program for mathematically precocious youth.] On the other hand, recruitment of boys, including strong involvement of personnel from hometown engineering firms, can wait a couple of grades. With black students --and their parents--sometimes the need is to stimulate consideration of engineering as an alternative to the ministry, education, law, or medicine, which have traditionally been regarded as the high-status professions by the black community.

I have not done justice to the Georgia Tech program here. It is more comprehensive and less coercive than my remarks indicate. In addition, it is a very special case, involving relatively able students and a career field that is not badly plagued by unemployment. However, the program does illustrate some of the difficulties and subtleties in making equal access/equal opportunity a reality.

In many cases, students are so conditioned by their backgrounds that they do not even seek opportunities in higher education. Although the overall statistics with respect to college enrollment of black students have improved remarkably since the Coleman report (Coleman et al., 1966)—from less than five percent in 1966 to nine percent in 1974 (U.S. Bureau of the Census, 1975)—we know that the range of choices for black students is still more restricted than the range of choices for white students. For example, black students are still more likely to attend institutions in the "state college" rather than the "state university" category (Conrad & Cosand, 1976, p.27; Institute for the Study of Educational Policy, 1975). The situation seems to be even more serious in the case of students from Spanish-American backgrounds (e.g., see Ferrin, Jonsen, & Trimble, 1972). Furthermore, proportionately larger numbers of minority than majority students drop out of high school before graduation. And even the--to us--meaningless attendance diploma provides more likelihood of access to postsecondary education than no high school diploma at all.

By the way, it is time that we quit apologizing for blaming schools for the poor quality of the students who enter many institutions of higher education.

Schools ought to be blamed for sending forth students with poor verbal and quantitative abilities—deficiencies that, when we get down to fundamentals, are the greatest deniers of all of equal access and equal opportunity. But the circle is vicious, for the colleges were the ones who trained the school teachers and administrators in the first place. And colleges continue to give As and Bs in English to a majority of the freshmen students who professors complain "can't write" (Maeroff, 1976, p.42).

Before we leave consideration of the students who may or may not seek equal access/opportunity, we should note a few other student characteristics that are relevant to admissions, recruiting, and retention decisions:

> Age and marital status. On the average, college students are getting older. In two-year institutions, for example, the average age has shifted from 22 only three or four years ago to 28 now (Cohen, Note 8, p.5). Some are delaying entrance; others are coming back. More are married. Different life styles from those of traditional undergraduates are probably reflected too in increasing ratios of part-time to full-time students and increasing numbers of special or "unclassified" students. These phenomena introduce both new dimensions to equal opportunity and a new criticalness about the opportunity afforded. For example, consider this "Ms." question: Are we allowing equal opportunity to a married woman student if we cannot offer admission or employment for her husband?
>
> Ability. Julian Stanley used to say that he had never seen a child--rich or poor; black, white, or brown—who read "two grades over level" who was described as "disadvantaged" (Anderson, 1973, p.204). Certainly ea/eo policies have very different impacts on

minority or women students who score in the 700s on the SAT and those whose scores are closer to 250. Ability factors make a profound difference even in who elects to submit to the SAT, ACT, and other admissions procedures in the first place.

Economic condition and geographical location. Some potential students are too poor even to take advantage of full scholarships (Conrad & Cosand, 1976, p. 29). And prospects for ever increasing tuition costs are staggering (Fleming, 1975). Furthermore, the availability of reasonably convenient public postsecondary institutions is highly variable across the states. Florida students are luckier than many in this respect.

Such differences in the targets of ea/eo policy render any unilateral policy ipso facto unfair to some candidates. As Dressel (1976) has pointed out, what we have here is a problem of "fit." Basically, colleges and universities have three models to choose from:

1. They can define programs, establish prerequisites for success in them, and select students who are likely to be successful--in other words attempt to match the programs and the students.

2. They can define programs, establish prerequisites for success in them, admit a wide range of applicants including some who do not have the defined prerequisites, and include as part of their endeavor efforts to provide the "deficient" students with the necessary competencies through tutoring, remedial programs, counseling, etc.--in other words, try to fit the students to the programs.

3. They can leave their program definitions relatively loose, admit a wide range of applicants, and develop and adapt programs to the abilities and interests of the students--in other words, try to fit the program to the students.

Political Pressures

I have listed these options in order of cost, which leads us directly into some of the political problems and pressures associated with attempts to provide more equal access and opportunity. The open admissions program at CUNY was not scotched because of overwhelming research evidence about its merit or lack of merit. It was scotched, as Harrington (1975) predicted it would be some months before in the New York Times Magazine, for politico-economic reasons. In Harrington's opinion, the demand to charge tuition, which accompanied arguments for closing admissions, was "a symbolic gesture designed to convince the American money market that New York City has given up its sinful, innovative ways" (p.16). William F. Buckley (1976), hardly an advocate like Harrington of the CUNY program, noted: "It is instructive that the mess is being accosted not by the application of reason...But by that faceless, leaden, brute force: money" (p.23-A).

New York City is a special case, to be sure, but few individual colleges or university systems are playing the game of "unlimited resources" these days. And few campuses are without their professional or community rivalries which might end up being fought out in the ea/eo arena. Having seen standardized tests become the whipping boy for all sorts of unrelated educational frustrations, I am well aware that the object of attack may have little to do with the causes. This is not to say that some ea/eo programs and the battalions surrounding them may not deserve annihilation. If they are conceived without conviction and implemented without humanity, they may do more harm than good. And in some cases, money may better be spent on a new cafeteria than on remedial classes. All I am urging here is that admissions officers, recruiters, and directors of special ea/eo programs be alert to the competing pressures on their institutions, and try to manage their ea/eo programs--and assemble evidence of their validity--in light of the competition.

Perhaps the assembly of such validity evidence could become a focus of efforts by institutional research centers. The director of the ERIC Clearinghouse for Junior Colleges (Cohen, Note 8, p.2) noted recently that they had "found institutional research to be concerned excessively with student flow--where they came from, where they went" and to be using "incredibly simplistic" designs. Maybe evaluation of alternative ea/eo-related programs and policies would offer the IR community more scope. This brings us back around the full circle, of course: You cannot evaluate ea/eo-related programs and policies without attempting to delineate the purposes of the college or university programs, appreciate the characteristics of the likely student population to be served, and analyze the competing politico-economic pressures on the institution.

Fairness

Equal access/equal opportunity is not isomorphic with open admissions, of course (Conrad & Cosand, 1976, pp. 21-24). In fact--and in spite of the messages I read at the beginning of this paper--many colleges place few deliberate restrictions on admissions. For example, an unpublished survey of members of the National Association of State Universities and Land Grant Colleges showed that 33--or about a third--of the 96 members reporting "had a policy of admitting any graduate of an accredited high school within the state in their 1971-72 admissions" (Trivett, 1976, p.3). But what has happened is that these same institutions also enjoy a great deal of student "drop out" and "ship out" especially in the first year. Freshman math was the chief villain at the land grant college I attended.

In this discussion, I have also suggested that because of such factors as lack of encouragement, poverty, or earlier "missteps," some students never reach the point where they can take advantage of open admissions. And we can think of situations where easy admission of students to incompatible or inappropriate programs may actually denigrate or delay opportunity. However, admissions policies are certainly associated with access and opportunity in the public's mind. And there are still a great many institutions which because of their objectives, status, or facilities can--or must--be selective. Most of these institutions are probably doing a good job of recruitment and admissions with most of their students. Equally probably, however, they are not doing quite as good a job as they would like to do. The gap may relate to the statement in the introduction of this paper about the relationships among equity, adverse impact, efficiency, and societal risks. So it may be well to examine that statement further--in the context of a higher education program that has more applicants than places.

Let us think first about equity. And let us assume that we have an admissions system (including perhaps academic ability measures, previous grades, ratings of motivation and the like) which truly predicts success in a program--to the extent that success can be defined and predicted. (It is unfortunate that in too many real situations we have had to make such an assumption without very good evidence to back it up.) Now we have a group of candidates ranked from high to low in terms of the admissions criteria. Then doesn't the most equitable procedure seem to be to select the students in order of rank--regardless of race, sex, national origin, relationship to a wealthy alumnus, or proficiency in tennis? Unfortunately, because of historical conditions--which many of us feel guilty about but few can be held directly responsible for--such a procedure will almost certainly result in selecting disproportionately fewer students from certain population groups--for example, women if math scores are an important criterion, Cuban Americans if English language scores figure substantially in the ranks. In other words we cannot maximize equity for all students and nonadverse impact on certain population groups at the same time.

Now suppose that we adopt some compromise between equity for all students and admission of a larger proportion of students from some population groups, including some fairly "high risks." In good conscience, we'd like to help the low members of this group as much as possible to avoid failure and frustration. This probably means remedial instruction, personal and financial counseling, special programs geared to their interests, etc. And we are now into institutional/program efficiency. It does not seem possible to maximize both lack of adverse impact and management efficiency.

Finally, consider the nature of the programs being offered and their relationship to society. Can we afford to admit less qualified students, provide them with less-than-optimal education and training, and then foist on the public less-than-competent primary teachers, nurses, bridge builders, or electricians? Perhaps, if we continue to turn out relatively poor college instructors in certain fields it will go unnoticed. But certain professional and service careers are crucial, and we cannot afford for the products of our effort to put society at risk--no matter how internally well-meaning and efficient those efforts are.

Summary

I'm afraid that this speech has rather rambled over many aspects of the equal access/equal opportunity problem and provided few answers. Thus, it is not easy to try to summarize my remarks. However, my favorite Yazoo City

English teacher, Miss Omie Parker, always said that speeches must have a summary--especially after lunch. So I believe that these are the four main points I want to make:

. First, I am reminded that the tragedy of T. H. White's King Arthur, as some have analyzed it, was that goodness, virtue, and even mystical intervention were not enough. In the area of ea/eo, goodness is certainly not enough.

. So, second, we have to employ all of our ratiocinative processes in disentangling the complicated interactions among institutional/program purposes, student expectations and other characteristics, and politico-economic pressures on institutions. Such analysis is essential to developing sound ea/eo policies, implementing them, and evaluating their effects.

. Third, in the admissions process, it is probably impossible to maximize fairness to individuals in terms of equity, to population groups in terms of lack of adverse impact, to institutions/programs in terms of efficiency, and to society in terms of benefits. Designers of ea/eo programs must be ever conscious of the tradeoffs involved, and must be prepared to compromise--and, in some cases, sacrifice one good for another.

. Finally, in spite of the emphasis here on the complexity of the ea/eo area--of the difficulties involved in interrelating institutional, student, political, and ethical considerations--we have made remarkable progress in providing access and opportunity in higher education. And this is true whether the standard is our own past or the efforts of other nations. As we strive--as we must--to improve our programs, we are entitled at least every once in a while to pause and contemplate our successes.

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THE IMPACT OF THE EQUAL EDUCATION AND EQUAL OPPORTUNITY MOVEMENT ON UNIVERSITIES AND THEIR MANAGEMENT INFORMATION SYSTEMS

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THE IMPACT OF THE EQUAL EDUCATION AND EQUAL OPPORTUNITY MOVEMENT ON UNIVERSITIES AND THEIR MANAGEMENT INFORMATION SYSTEMS

Abstract

This paper discusses the impact of the equal opportunity movement on universities and the management information systems they use to produce and analyze required data. The variety of federal rules, regulations and legislation that have been promulgated to attack the problem of discrimination are outlined. The mixed emotions of the university community toward the numerous regulatory guidelines are examined in regard to the general impact on universities. The expensive and complicated process of having to adapt the management information system of universities to meet the demands of federal requirements is featured. The paucity of information, specific data requirements, the results of system development, and the challenge for the future are each included in the discussion.

THE IMPACT OF THE EQUAL EDUCATION AND EQUAL OPPORTUNITY MOVEMENT ON UNIVERSITIES AND THEIR MANAGEMENT INFORMATION SYSTEMS

According to a recent article in the Atlanta Constitution, it would take 50 professional baseball stadiums to hold all the crumpled-up paperwork generated in one year. If you do not bother with the crumpling and just stack all the forms one on top of another, the resultant stack would be three times as high as the Washington Monument (Martin and Townsend, 1976). There can be little doubt but that a large percentage of all this paperwork is directly related to federal policies designed to end racial and sexual discrimination. There can be no doubt but that all the paperwork required for monitoring and reporting on policies dealing with discrimination has had a fundamental impact on universities and their management information systems.

Federal Regulations and Legislation

A variety of federal rules, regulations and legislation have been promulgated, each of which attacks the problem of discrimination in a different manner. Before attempting to address the question of the impact of this effort to end discrimination, it is important to have a clear understanding of the scope of the effort.

There are four sets of federal regulations and laws that now cover discrimination in institutions of higher education.

1. Executive Order 11246 as Amended by Executive Order 11375 -- Executive Order 11246 is not a law, but a series of rules and regulations that must be followed by institutions that have accepted federal contracts. Its purpose is to prevent discrimination in employment. Institutions holding federal contracts are required to file with the Department of Health, Education, and Welfare a written plan of affirmative action to "remedy the effects of past discrimination" and to prevent the continuation of current discrimination (Sandler, 1974, p. 2).
2. The Equal Pay Act of 1963 as Amended by Title IX of the Education Amendments of 1972 -- The Equal Pay Act was the first sex discrimination legislation. It requires that employers raise the salaries and pay back-pay to nonprofessional women who have been found to be underpaid as compared to their male counterparts. Title IX of the Education Amendments extends the coverage of the Equal Pay Act to executive, administrative, and professional employees, including all faculty (Sandler, 1974, p. 2).
3. Title IX of the Education Amendments of 1972 (Higher Education Act) -- Title VI of the Civil Rights Act of 1964 originally spoke to the issue of discrimination on the basis of race, color, and national origin in all federally assisted programs. Title IX extends the provisions of Title VI to include sanctions against discrimination on the basis of sex. All educational institutions, whether public or private, that receive federal money from grants, loans, or contracts are forbidden to discriminate on the basis of sex, as regards both students and employees (Sandler, 1974, p. 3).

4. Title VII of the Civil Rights Act of 1964 as Amended by the Equal Employment Opportunity Act of 1972 -- Title VII of the Civil Rights Act forbids discrimination on the basis of race, color, national origin, religion, and sex in employment. The Equal Employment Opportunity Act amends Title VII to cover all educational institutions, public or private, whether or not they receive any federal funds (Sandler, 1974, p. 3).

The four sets of federal regulations and laws present institutions of higher education with a wide range of complex and often times confusing requirements. All aspects of employment are covered, including hiring practices, working conditions, salaries, promotions, and terminations. Most practices regarding students and student programs are now also covered.

General Impact on the University

There is no question but that most universities support the concepts of equal education and equal opportunity for all. However, the impact of the numerous regulatory guidelines that have been imposed is viewed by the university community with mixed emotions.

In the spirit of the Bicentennial, the presidents of the four major private universities in the nation's capital have published "A 1976 Declaration of Independence," in which they have expressed the concerns of many a university both public and private:

> "During the first two centuries of this nation's life, government leaders were dedicated to the proposition that institutions of higher education were independent, voluntary associations serving public and private purposes. By being so dedicated, governments at all levels encouraged colleges to create a system

> of quality and diversity that was to become the standard of academic excellance throughout the world.
>
> "Recent government policies and behavior toward education, however, have threatened this valued independence and have shaken the foundations of our system of higher education in this country.
>
> ". . . With fifty administrative agencies and two dozen committees of the U.S. Congress . . . having direct responsibilities that impinge on our universities, governmental regulation and oversight can become a disguised form of governmental control. Institutions are driven to defensive strategies.
>
> "The innovative and searching analysis expected of colleges of society suffers in the face of the mounting necessity for dealing with the myriad, pedantic, and sometimes contradictory requirements imposed by government regulation. Diversion of faculty and staff attention to questions of compliance is a damaging intellectual cost which universities and society at large can ill afford to pay." (Cleary, Walton, Elliott, and Henle, 1976)

The slow and subtle erosion of its philosophical foundation as suggested by Cleary, et. al., may in the long run prove for higher education to be the most fundamental impact of the equal education and equal opportunity movement. A more immediate, more obvious and certainly more desirable effect relates to the changes universities have made in recognizing many of the basic human rights.

Fundamental changes have been made in recruitment practices. Universities now employ elaborate procedures for advertising faculty and staff vacancies in journals and periodicals that are likely to be circulated among women and minorities. Student recruitment has also been changed to entice more women and minorities to enroll. Special financial aide, counseling, and academic tutorial programs are now integral parts of the student affairs program at most universities.

Employment practices have been changed to reflect the needs of women. Maternity leave benefits have been implemented or made more realistic. Nepotism rules have, for the most part, been abolished. Retirement and insurance policies have been revised.

These changes and the myriad of others that have occured have resulted in a second major effect that relates to the cost of such programs to universities. In this time of financial exigency, cost, above all else, has captured the immediate and critical attention of the university community.

Johnson (1974, p. 61) writes that "The U.S. Department of Health, Education, and Welfare has made it clear that the affirmative action plan negotiated between Berkeley and HEW will serve as a model for all other affirmative action plans negotiated between institutions of higher education and HEW." Universities of similar size and complexity as Berkeley, using the Berkeley model, might then expect to incur costs similar to those of Berkeley. For 1974-75, the State of California appropriated $250,000; the Regents appropriated $500,000; over $2 million was spent by absorbing costs within regular institutional resources; and another $500,000 was spent from internal funds specifically earmarked for affirmative action -- for a total of approximately $3 million (Johnson, 1974, p. 61).

In the State of Florida, $1.57 million was appropriated in 1975-76 for the State University System "Plan for Equalizing Educational Opportunity."

This amount is exclusive of any of the funds spent by any of the universities in negotiating and implementing their own affirmative action plans or programs.

Impact on Management Information Systems

The cost of data production and analysis represents a substantial percentage of the high cost of the equal education and equal opportunity programs. The process of adapting the management information systems of universities to meet the demands of federal requirements has proved to be expensive and complicated.

Originally the major problem confronting universities related to the lack of basic data. The paucity of information deprived federal officials and campus administrators of the facts needed for policy formulation and for day-to-day decision-making.

In search of meaningful data, under the auspices of Executive Order 11246, federal officials issued a comprehensive set of specifications for employee data. Universities were required to establish a basic employee data file. The file was required to contain, at a minimum, fourteen basic data elements:

1. name and/or identification number
2. sex
3. ethnic identification
4. year or date of birth, or age
5. current salary (full-time annual equivalent)
6. current job family or generic job family
7. current job title
8. personnel action resulting in current job title (new hire, promotion, transfer, demotion)

9. date of personnel action resulting in current title (years in current job)
10. previous job title
11. employment status (full-time, part-time, tenured, non-tenured)
12. educational level
13. organizational unit where employed
14. date of hire (U.S. Department of Health, Education, and Welfare, 1972, p. J-2).

Universities were required to develop the capability to produce analysis on the basic data in the following manner:

1. By department, a list of each job classification in descending order showing the numbers by sex for each racial and ethnic group, as well as cumulative figures for minorities and for females generally.
2. By job classification, within the entire institution, showing the numbers by sex for each ethnic group, as well as cumulative figures for minorities and for females generally.
3. By department, the mean salary in each job classification, by sex for each racial and ethnic group.
4. By job classification, across department lines, the mean salary in each classification, by sex for each racial and ethnic group (U.S. Department of Health, Education, and Welfare, 1972, p. J-2).

Specifications for student data, that are as detailed as those for employee data, have not yet been issued. Universities are finding, however, that to meet reporting requirements they are having to develop comprehensive data bases of student data. Critical data elements include:

1. name and/or identification number
2. sex
3. ethnic identification
4. year or date of birth, or age
5. nation of citizenship
6. level of highest degree
7. student's classification level
8. student program/program category
9. current term course load
10. level of degree granted
11. grade point average

Development of the systems required to generate and maintain the data that is being required has involved the expense of computer hardware and software, keypunch operators, programmers, machine time, and report production. The cost of the university personnel who develop and maintain the manual records that serve as the original source of data and of those who use the data to produce the variety of statistical reports required has also proved to be a considerable expense (Johnson, 1974, p. 62).

In 1974, after four years, Mary Lepper, of the Office of Civil Rights, reported that there had been some improvement in the amount and quality of data available, but that there was need for further improvement. The data on women was better but those on minority groups remained inadequate (Fields, 1974). Now, two years and millions of dollars later, further improvements have been made, but the challenge remains.

Now that universities have developed relatively reliable systems for generating and analyzing the data that is required, the future holds the prospect of dealing with the costly effects of continually changing federal definitions and reporting requirements. The challenge to the university community will be to develop new methods and new systems which will substantially reduce the costs of monitoring and reporting on policies and procedures dealing with the equal education and equal opportunity movement.

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A NEW CAVEAT: LET THE BUYER BE AWARE

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Paper Presented at the
Ninth Annual Florida Invitational Conference
on Institutional Research June, 1976

ABSTRACT

Recent reports of state and federal government agencies make it clear that students and their families are now generally accepted as the primary consumers of educational services and are entitled to the consumer protection concepts and mechanisms guaranteed by law. Implicit and explicit, in the mechanisms of consumer protection, is the concept of full disclosure; the idea that consumers are better protected when they have full access to meaningful product information and have full knowledge of their "consumer rights" and responsibilities. As the lack of full disclosure has prompted regulatory agencies into seeking protection for the student/family consumer in higher education, attention must now be given to the determination of relevant institutional data necessary to aid students and families in making informed and intelligent decisions concerning educational opportunities.

The purpose of this paper is to identify information to assist the prospective student in evaluating programs and institutions of higher education through the development of a reporting format, a "consumer's guide," that lends itself to easy analysis and interpretation. In addition to cost, retention, and placement success information usually suggested by consumer protection groups, the consumer's guide will include data for institutional and program evaluation, focusing attention on the data necessary for student consumer admissions decisions.

A NEW CAVEAT: LET THE BUYER BE AWARE*

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In spite of the general reluctance on the part of educators to recognize or accept the academic and marketplace parallels, economic theories and concepts are finding their way into education with increasing regularity and intensity. Consumerism, the latest of the concepts from the marketplace to be applied to education, gives the promise of a new reckoning for educators with the theoretical and practical intrusions from the world of commerce.

Consumerism and Education

There are several reasons to believe that the age of the consumer has come to education whether or not educators are ready and willing to accept Consumerism as an operating principle. First, Consumerism, the protection of the consumer from inequitable treatment by the vendor, is a cause or right many will champion and few will argue against (Arnstein, 1974). Second, the student, because of his time, energy and financial investment, has won the uncontested role of postsecondary educator's primary consumer (Shulman, 1976; Willett, 1975; El-Khawas, 1975). Perhaps the most obvious reason that consumerism will become an educational as well as an economic concept, however, is the fact that consumer advocate groups and state and federal governmental agencies have already developed rules, regulations, and legislation to protect the student as a consumer (Department of Health, Education, and Welfare, 1975; Educaiton Commission of the States, 1973; Shulman, 1976; Willett, 1975; Peterson, 1970).

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* This paper was also presented at the Annual Forum of the Association for Institutional Research, May 1976

While some academicians, true to their calling, will debate the definitions and others will fret over the appropriateness of a 12-month or 12,000 mile guarantee on college degrees, or recalling graduates with "defective parts" or other cynical analogies to "consumerism," the real concern of educators should be in correcting the abuses which make the student a consumer in need of protection (Dykstra, 1966). The fact is that nowhere has the old caveat, "Let the Buyer Beware," been more assumed than in education. At least in business there was the countering, if not often prevailing, attitude of "The Consumer is Always Right." Unfortunately, there are now generations of educational consumers who have come to believe, if not know, that the "student is never right." The question is no longer whether the concepts of consumerism will apply to the relationship between the student and the postsecondary institutions, but rather how the student will be assured of his consumer rights.

The Basics of Consumerism

Consumerism is based on the philosophical conviction that the consumer and the vendor meet in the marketplace as equals (Willett, 1975).

Equitable treatment for the consumer is embodied in four basic areas of consumer rights, and it is the protection of these consumer rights that the consumer movement is all about (Education Commission of the States, 1974):

1. The right to safety or protection in the purchase of a good or service; including the right to hold accountable the person or organization to whom the consumer pays his money.

2. The right to choose; including the right to participate in the decision making process which establishes the relationship with the vendor;
3. The right to be heard; which implies a system for negotiation and arbitration of disputes over the consumer vendor relationship;
4. The right to be informed; to have access to all pertinent information which might affect the consumer's decision to buy;

While each of these rights is important and has significance in the consumer movement it is the right to be informed - full disclosure as it is also known - that has come to be regarded as the focal point of consumer protection, more likely than not because it has been lack of information which has caused problems in consumer safety, decision making and protection (Department of Health, Education, and Welfare, 1975). It is on the premise, generally regarded as true, that consumers are best protected when they have full knowledge of their "consumer rights" and responsibilities, that the new caveat "Let the Buyer Be Aware" is proposed for the postsecondary education marketplace.

Full-Disclosure and Postsecondary Education

Without apparent exception, all of the reports, conferences, and regulations to implement consumer protection for students include recommendations for the release of complete and accurate information about the institution to the student or prospective student which might influence the student's decision to attend or accept offers from a college. The implication of the various recommendations, and the general conclusion of several investigations, has been that too little attention has been given to the information needs of the student[1] (Education Commission of the States, 1975; Fund for the Improvement of Postsecondary Education, 1974, Jung, 1975, Department of Health, Education, and Welfare, 1975; Willett, 1975; Education Commission of the States, 1974).

Unfortunately, most of the information now available to students is lost in the public relations rhetoric of catalogs and recruiting brochures. Other pertinent information never finds the printed page and is released reluctantly, if at all, only upon insistent direct questioning. In fact, one gets the impression from reading most college publications that "hard data" is systematically avoided (Dykstra, 1966).

Everyone knows, of course, that decisions about where to go to college and what to study are probably more emotional than rational. But then, given more objective information on which to base the decision the student may be less prone to rely on subjective factors (Dykstra, 1966). In any event, the student's decision must not be based on insufficient institutional data.

Consumer and Information

The reverse side of the assumption that consumers are wise enough to make good decisions if they are provided with accurate information is the awareness that the complexities of today's products - and product decisions - make it virtually impossible for the average consumer to become expert enough to fully utilize the information, accurate though it may be, to protect himself in the marketplace

(Education Commission of the States, 1974). The inability of the consumer to interpret complex product information or to make meaningful comparisons or decisions on the basis of the information has prompted some to suggest that the government will have to assume the function of "interpretor" for the consumer (Education Commission of the States, 1974).

The frightening prospect of further government involvement in the reporting and interpreting of educational data coupled with the obvious need for more meaningful educational information for the student consumer, prompts this proposal for A Consumer's Guide to Education.

A Consumer's Guide to Education

The proposed Consumer's Guide to Education deals only with the identification of information for the prospective student to use in evaluating programs and institutions, and the development of a reporting format that lends itself to easy analysis and interpretation by the student. The purpose of the *Guide* is not to rate institutions, but it should facilitate institutional and program comparisons. Much of the information the *Guide* will present is probably already collected and reported in one form or another - although probably not in one place - while other information may present some collection problems for many institutions. The illustrative material which follows, while not exhaustive, is intended to be an example of the data that could and should be reported by the institution in a straightforward manner in A Consumer's Guide to Education. Particular interest is paid here to the data relating to full disclosure of academic programs and to related student, faculty cost and resource information: areas which are most subject to insufficient data and misinterpretation.

Institutional Identification and Directory Data. In addition to the current official corporate name of the institution, and the location of the main campus and the name of the parent institution if a branch campus, a complete chronology of critical institutional dates (founding date, first coursework, first degrees, name changes, etc.) should be provided to the student consumer.

Institutional Control, Affiliation and Corporate Status. Although the eight basic types of institutional control used by the U. S. Office of Education are generally recognized as being descriptive for reporting institutional control, an explanation of what "control" means is needed as not all states, municipalities, religious groups or corporate entities "control" in the same fashion. This is particularly true for private institutions where terms such as "affiliated" or "associated with" or "sponsored by" which have no clear or commonly understood meaning, are used to describe a college-church relationship. Proprietary schools should state all corporate relationships, parent corporations, holding companies, etc.

Composition of Governing Boards. While it may be informative to have an actual listing of names of people on the Governing Board of the institution, it would be more helpful to have a statement of the special qualifications required for board membership, how the members of the board are selected, and what constituencies they represent. It is often possible to get a better reading on the "control" of an institution by knowing how its Governing Board is selected, than by knowing its public, private, or corporate status. Proprietary schools should list the owners and/or principal stockholders.

Institutional Accreditation, Licenses, on Approval. The statement of institutional accreditation must include which of the six regional accrediting associations has recognized the institution, and the type of accrediting (full, candidate, 4 year college accredited as junior college, provisional, covered under the regional accreditation of parent institution) awarded to the institution by the association. Note should also be made of the highest program levels offered, and specifically those which have and have not been accredited or approved. Schools not covered by the accrediting associations must state the authority, licensure, or approval under which they offer educational programs.

Institutional Purpose, Objectives, Goals. The statement of institutional purpose, objectives, or goals, should be clearly stated and easily understood. It is recommended that the purpose, objectives or goals be stated in a style which is easily interpreted into specific outcomes. The student should be fairly certain after reading the statement of goals what he can be expected to do as a result of the educational experience.

Institutional Evaluation. Institutions should state the methods and procedures it will use to determine whether or not the stated institutional purpose, objectives or goals are being met. Obviously the methods and procedures of evaluation will have to be tied to the stated purpose, objectives and goals, hence the previous suggestion of behaviorally stated outcomes.

In addition to the reporting of institutional self evaluations, educational audits or evaluations by outside groups (including accrediting reports) should be available to the student.

In one form or another, the institution should state how well it is performing its mission, and how that performance has been determined.

Requirements/Qualifications of Faculty and Administration. An indication of the ability of the faculty and administration to accomplish the objectives of the institution is an important aspect of institutional evaluation. If specific requirements and qualifications other than those usually expected for an academic appointment (such as church affiliation) are required of faculty or administrators, they should be stated. Statistical data summarizing the qualifications needed for faculty and administrators to accomplish the stated institutional goals should be reported. In most cases the summary should include the highest earned degrees of the faculty.

Other Faculty Data. Statistical tabulations of faculty and administration data should include the number of faculty by rank and function, length of service at the institution, age distributions, tenured faculty, and tabulations by sex and race. It is assumed that a complete listing of faculty, including their qualifications and their responsibilities, will be available to the student, although probably in another document.

Curriculum and Program Data. The Consumer's Guide to Education is not intended to replace the college catalog as a source listing of courses and course descriptions, or the detail of major and institutional requirements for degrees. There is an obvious need, however, to make the information in the catalog closer to reality. The resemblance between course description and course content is too often only coincidental, and the courses listed in the catalog should only include those that have been taught in the last several years, or have an honest chance of being taught in the near future.

The Guide would include a statement of the calendar type (quarter semester, 4-1-4, trimester, etc.) and the approximate dates of the beginning and end of each term. Semesters, for instance, can be quite different in concept depending upon when they start and end. Information on majors and academic programs should include: the type of professional accreditation held, if any (in addition to regional accreditation); the number of courses offered in the major area and the number of those courses taught during the last year; the total number of faculty qualified in the area and the full-time equivalent faculty teaching in the major during the past year; the degrees awarded or certification offered for completion of the major or program; the number of hours or courses required in the major for completion; and, the average number of years (or terms) needed to complete the program or a degree in the major.

Information on majors and academic programs should also include the number of declared majors; the number of recent graduates or program completers; the basic ability levels; and the grade point averages of students in each major or program; and averages on "exit" tests.

Student Data. Some important student data has already been described with the curriculum and major program data, but clearly more information on student characteristics needs to be provided. Strange as it may seem, information other than raw totals or averages on students is generally not available. The following data should be provided.

Enrollment. Enrollment by sex, race, age, full-time, part-time, matriculation status, residence, and class should be provided for the most recent fall enrollment period.

Socio-Economic Characteristics. Descriptive data in the socio-economic background of the student body, generally available from ACE, ACT or SAT summaries on entering students, should be reported for prospective students.

Admission Requirements. All of the requirements and considerations for admission should be clearly stated, including the dates and deadlines for application and acceptance. The amount of any fees, nature of any fees or deposits and fee refund or waiver policies should be clearly stated.

Ability Levels of Entering Freshmen. Frequency distributions of the admission test scores, high school grade point averages, or other ability measures or indices, should be presented along with the mean and median scores for entering freshmen. If regional, national, or similar institution averages are available they should be reported as well.

Predicted Student Success. First quarter predicted grade point averages are frequently used in the admissions process, and when they are the prediction equation should be made available to the student. In addition, it would be possible to prepare a chart which would allow an easy approximation of the predicted grade point average for the prospective student.

Student Achievement. Grade distributions by class, major, or department and student class rank by grade point average is information that could give the prospective student a notion of student attainment and institutional expectation. Simple distributions of the data should be provided.

Student Retention/Persistence. Data on the number of students who start and complete programs at the institution, along with figures on the number of students who enroll from previous quarters should be available in the Guide. In addition, reported student reasons for leaving the college should be provided.

Ability Levels of Program Completers. Frequency distributions of the same ability criteria used in admissions and reported for entering freshmen should be made for the students who have successfully completed their programs or degrees. Obviously the student's scores won't change, but the difference in the distribution scores for entering and exiting students can be revealing.

Measures of Program Completer's Achievement. Senior comprehensives and "exit" exams of various types are coming back into vogue as the issues of program and institutional evaluation and accountability become more important. The institution needs to state the methods and procedures it uses in evaluting the programs if offers, and report the results of the measures it uses to determine the success of the programs, including the scores of its graduates on various nationally normed tests by program, major, or degree.

Where appropriate, success rates on bar exams, medical boards, licensure tests, admissions to graduate and professional schools, etc., should be reported.

Placement and Alumni Data. Closely related to the data on the achievement of program completors is the information about what graduates do after college. Proprietary schools face more demands for such information than do colleges and universitites, but the demand for more job related information for graduates is increasing for all postsecondary institutions. The information on placement of graduates should reflect those who have positions, those who have positions in their field of study, those who don't have positions, those who don't have positions but are looking for positions, those who aren't looking for positions, and those who intend to make a career of their present work, as well as information on how their college work relates to their employment.

Tuition, Fees and Costs. In view of the fact that most institutions are seeking more than a one-year commitment from the student, it would seem only reasonable for the institution to project the anticipated cost to the student over the entire length of the program. Obviously tuition and fees will be subject to change, but the changes in fees and tuition aren't as unexpected or unplanned as most institutions would have students believe. (If increases are unplanned or unexpected that says something about the quality of financial planning at the institution). Guaranteed tuition plans are all but gone now, but a projection of anticipated costs over a two or four year period need not be a cost guarantee, nor a commitment to single levels of cost over the period projected. What is needed is an indication of what the cost increases are likely to be, and those cost projections are or should be a part of the planning of all institutions.

In addition to the tuition, activity fees, deposits, etc., that are required of all students, any special fees associated with a given program, e.g. music fees, uniforms, laboratory fees, must all be listed. As the special fees are often buried in the catalog, all cost data in the Guide would be reported together.

In those cases where the student is required to room and/or board in institutional housing, special note should be made so the student will include that cost in his planning.

Estimates of costs of books and supplies and any personal living expenses should be provided based on the averages for currently enrolled students. Such data is used in determining financial aid at most institutions and should be reported.

Institutional Finance. For the curious or cautious student, a complete current audit report of the institution should be available for examination: most students don't need that much information to get a feel for the solvency of the institution. However, basic financial information reported to all students should include a statement of revenue and expenses showing dollar amounts and percentages for each of the typical revenue and expense classifications and a balance sheet.

Particular emphasis needs to be placed on the percentage of revenue generated by tuition, and the percentages of expenses going toward instruction. Someday, perhaps, auditor's statements (and accreditation reports) will tell the public more than that the books and records are kept according to accepted standards, and report specifically on the financial position of the institution.

Student Rules and Regulations. Although it may not be necessary to give details of dorm house rules, etc., specific rules and regulations affecting the student's rights to continue his enrollment should be clearly stated. It is also important that the methods and procedures of setting student rules and regulations be spelled out in detail and that the student know the procedures of being found guilty of breaking the rules, the consequences, and the appeal procedures.

Conclusion

More likely than not, this first attempt at A Consumer's Guide to Education is a bit like a twelve year old's first reading of Everything You Wanted to Know About Sex but Were Afraid to Ask: It's more than he wanted to know even if he had known what to ask in the first place. The point is, that as educators and researchers, we have known more about education, institutions, and how students mix with both than we have told or than has been asked. We need to find a way to get that knowledge to the student without turning them to total abstinence or complete promiscuity.

Footnote

[1] A notable exception is the work being done by the Fund for the Improvement of Postsecondary Education through their project on better information for student choice of college.

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RESPONSE SYSTEM WITH VARIABLE PRESCRIPTION

RSVP

A COMPUTER-BASED INSTRUCTIONAL MANAGEMENT SYSTEM IN OPEN LEARNING

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Abstract

The Response System with Variable Prescriptions (RSVP), a Computer-Based Instructional Management System is described and presented as a means for individualizing instruction for small as well as large classes. The paper discusses the necessity for the front-end work to be undertaken by the faculty in order to utilize the RSVP System creatively and meaningfully. This instructional management and prescriptive system has great promise for enhancing the educational process and is limited only in relationship to the energy and creativity levels of the faculty who wish to use the system. Research related to the use of RSVP in "open learning" in Miami-Dade Community College is presented.

Introduction

> For the past quarter of a century, America has introduced each decade with a new theme for higher education. In the 1950's, the theme could have been "accent on selection." In the 1960's, it was "accent on access." For the 1970's it is Accent on Learning. (Cross, 1976; p. ix)

Prefacing thus, her recent book entitled Accent on Learning, Dr. Patricia Cross presents a vivid description of the "silent" revolution that is taking place in institutions of higher learning. The "New" students in these institutions have been the impetus for the "silent" revolution that demands changes in instructional designs and teaching strategies. Accordingly, the 1970's have witnessed a variety of alternate education programs.

Baskin (1975) claims that the alternate education programs "are designed to provide new options and new ways to learn to persons whose learning needs were not being met by the nations campus-based system of higher education." Baskin classifies these programs as: 1. Certification of achievement (credit/exam); 2. Media and/or technology centered programs which focus on alternate modes of delivering information to students outside the classroom; and 3. Learner participation and experientially oriented programs.

The second category of alternate programs presented by Baskin is more popularly known as "open learning." The authors of Diversity by Design (1973) aptly expressed the spirit of the concept of "open learning" when they described it as "a philosophy of learning, a craft of teaching, a vision of life."

At Miami-Dade Community College, the Division of Open College has assumed the arduous task of implementing open learning courses. To date, eleven different college credit courses have been offered through television, radio and print materials. Intertwining these various components of instruction into an integrated learning program is RSVP (Response System with Variable Prescriptions), a Computer-Based Instructional Management (CBIM) system.[1] Additionally, and more importantly, RSVP brings alive instructor-student dialogues in open learning, which is generally perceived as devoid of such interaction. No doubt, the dialogues find expression in the written, rather than in the verbal form.

It is the writers' contention that "teaching with computers" is a way of thinking and a way of behaving. It does call for teaching skills that differ in kind and amount from those needed in classrooms. Moving from on-the-spot, spontaneous, vocal dialogues to pre-planned, systematic, written dialogues is, doubtless, an alteration of teaching behavior that is not instantaneously achievable. Hopefully, what we have to say in the following pages will lend credence to our contention.

Description of RSVP

RSVP is a system of nine computer programs which assists an instructor to individualize instruction while managing up to 5000 students in any single course whether the course is taught on campus or in a remote setting. RSVP operates by maintaining three files for each course -- course file, student file and student index file. The student file contains student records which include information on student characteristics and performance.

RSVP scores student responses (Response System) and prints student reports (Variable Prescriptions). The variability in feedback to students is achieved through the use of control mechanisms called decision rules which can utilize attribute and performance information to differentiate the students for variable prescriptions. The instructor selects the criteria for differentiating students and composes the corresponding messages and prescriptions. In executing the instructor's commands, RSVP captures invaluable data for research related to student learning and prescriptive teaching.

Instruction via RSVP

The instructional functions of RSVP are best utilized when the teaching-learning process is conceptualized as taking the form of Instructor-Student dialogues. The framework of these dialogues consists of three stages:

1. Instructor presentation of instructional stimuli of various types to elicit student response in objective response format;
2. Student response to the instructor's stimulus presentation by choice of response options; and
3. Instructor responses to the choice made by the student.

Over the term, teaching a course does require each of the stages of the dialogue outlined above. In using RSVP it is highly desirable that the stimulus situations provided for student response be planned in advance together with possible options for student response and appropriate instructor prescriptions for student choices. Although it is possible to devise stimulus situations, options for student response, and prescriptions as the term progresses, it can become hectic and finally a race to determine the strength and stamina of the instructor. It can be done! It is, however, profitable and desirable to conceptualize stimuli with prescriptive responses as the course is developed so that the objective response format items may be given to students when the course is started.

Presentation of stimuli (for use with RSVP) may be by nearly any means: lecture, discussion, reading assignment, film, video-tape, audio-tape, field visit, laboratory work, project assignment, etc. -- and the purpose may be either instructional or evaluative. The focus of this discussion is on the instructional aspects of the objective response format used with RSVP. Student responses to the stimuli provided by the instructor are of importance, not only in the case of the correct answer, but also in the case of the choice of an incorrect answer or in some instances, where there is no correct answer for student choice.

In constructing the stimulus situations for eliciting student responses, there need to be clearly identified purposes for presenting the stimulus situation. Some of the purposes that lend themselves for meaningful instructional dialogues through RSVP can be:

1. To identify the gaps in acquired information...gaps may be in the form of "uninformed" and/or "misinformed" condition.
2. To check if students comprehend what they see, hear and read.
3. To identify the difficulties a student may be experiencing while participating in the learning activities...difficulties may be inherent to learning and/or external to learning.

4. To elicit the kinds of questions and/or doubts that a student may raise while participating in the learning activities.
5. To elicit students' opinions, interests, reactions, endorsements, objections, etc., to what is being presented to them through learning activities.
6. To challenge students' thinking with problem solving situations which are an extension of what has been presented.
7. To encourage students to see several pieces of information in an inter-related context.

Once the purpose is clear, stimulus situations can be presented in different ways, to follow or precede or occur during the learning activities such as reading, film viewing, class discussion, etc. As the options for student response are selected for a stimulus situation, prescriptions for that situation should be thought out. Interestingly enough, when an instructor attempts to prescribe, the flaws in the stimulus situation and options for student responses become apparent. When nothing more than "your answer is wrong, look up page _n_, in your text" can be said by way of prescribing, one cannot but re-examine the question written in the first place. This awareness has led several of the instructors, who have used RSVP for instruction, to report that RSVP has helped them to become better teachers.

Methods of prescribing can take many forms: prescription for each option, prescription for each item, prescription for a group of items, prescription in relation to attainment of course objectives, prescription by present and past performance, prescription according to student attributes and interests, prescription in terms of student time schedule, location and on and on. Enumerating can become endless. It is done only to point out the possibilities. These forms are not mutually exclusive. Several forms can be used in conjunction. No two instructors need to use the same methods of prescribing. In other words, each instructor programs RSVP to suit his/her objectives for individualizing instruction. The crucial question is: What criteria should be selected to provide variable prescriptions to meet the individual needs of students? What better opportunity can an instructor ask for to express one's creativity and ingenuity to make teaching unique and meaningful?

Research Related to RSVP

Like all educational innovations, RSVP needs to face up to the rigors of evaluation. Beginning modestly with one course, but a large enrollment of 1163 in Winter of 1972, Open College now offers 11 different courses, attracting approximately 2,000 enrollments per semester. Since its inception and through the Fall semester, 1975-76, these courses had been offered to approximately 13,000 enrollees and instructionally managed through RSVP by 13 instructors. The enrollment figures for the three terms in 1974-75 and Fall 1975-76 are shown in Table 1. As can be seen from Table 1, Open College courses are equally popular with men and women and approximately 50 percent of the enrollees are 30 years or older.

The courses generally provide six to twelve RSVP surveys, each survey being made up of several questions. When the student sends his responses marked on a marksense card, he receives a RSVP letter (preconstructed by the instructor) giving him prescriptions for the questions he missed and commendations for those answered correctly. Full participation in the RSVP instructional system would, then, mean that the student sent in all the RSVP surveys provided in a course and received corresponding number of RSVP letters. Participation in the system is not a requirement in open learning. However, when RSVP surveys are not turned in, the student receives a letter to that effect and is encouraged to participate.

Data for the Fall term, 1975-76 showed that two out of every three students utilized the RSVP system. The participating group registered less number of course drops and greater number of course completions. (See Figure 1.) It should be mentioned that self-initiated participation in the RSVP system was observed only in 15 percent of the students. The remaining 85 percent needed to be reminded.

Correlational studies have repeatedly demonstrated the significant relationship of RSVP participation to course completion and performance in course examinations. These are summarized in Table 2 for two terms.[2] Women and older persons tended to use the RSVP system to a significantly higher degree in most courses. Correlation between RSVP utilization and exam score was consistently significant from term to term and for all courses. When effects of sex and age were held constant, the partial correlation between RSVP utilization and exam score was significant. Moreover, RSVP becomes a decisive winner when it comes to students' evaluation of the courses offered in Open College. Term after term and course after course, students gave the highest rating to RSVP. (See Table 3.)

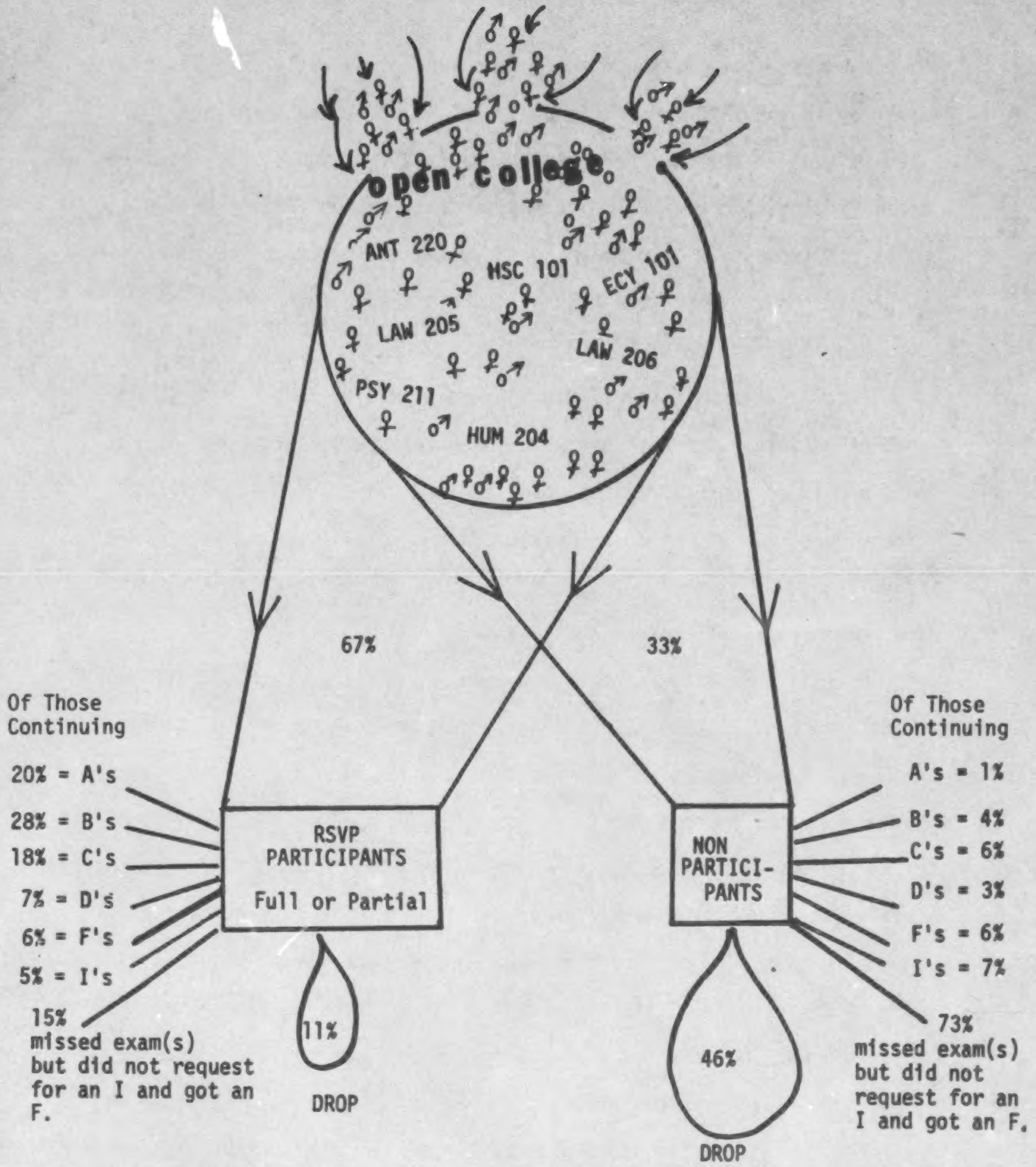
open college
ANT 220
MSC 101
ECY 101
LAW 205
LAW 206
PSY 211
HUM 204
67%
33%
Of Those Continuing
20% = A's
28% = B's
18% = C's
7% = D's
6% = F's
5% = I's
15% missed exam(s) but did not request for an I and got an F.
RSVP PARTICIPANTS
Full or Partial
11%
DROP
NON PARTICI-PANTS
46%
DROP
Of Those Continuing
A's = 1%
B's = 4%
C's = 6%
D's = 3%
F's = 6%
I's = 7%
73% missed exam(s) but did not request for an I and got an F.

Figure 1 GRADE PERFORMANCE AND DROP RATE AS RELATED TO RSVP PARTICIPATION

TABLE 1

TERM ENROLLMENT IN OPEN COLLEGE BY SEX AND AGE[1]

1974-75 and FALL 1975-76

	Fall 1974-75	Winter 1974-75	Sp/Sum. 1974-75	Fall 1975-76
Number of course offerings	6	8	3	8
Number of course registrations	1435	3564	686	2219
SEX	%	%	%	%
Males	45	45	59	42
Females	54	55	40	58
AGE				
17 years or younger	1	3	2	1
18 - 22	20	26	22	22
23 - 29	30	25	30	28
30 - 39	27	23	27	27
40 - 49	12	12	8	13
50 years or older	11	6	12	7

---

[1] Lack of information on sex or age is not shown in the table.

TABLE 2

CORRELATION SUMMARY

WINTER 1974-75 and FALL 1975-76

VARIABLES CONSIDERED	ANT 220	ECY 101	ECY 102	HSC 101	HUM 204	LAW 205	LAW 206	PSY 211
Winter ('74-'75)								
Sex^1 & RSVP Utilization^2	.13**	-	.20**	.17**	-	.11*	.05	.13**
Age & RSVP Utilization	.21**	-	.28**	.08**	-	.16**	.06	.14**
N	328	-	512	1238	-	306	124	518
RSVP Utilization & exam score^3	.42**	-	.53**	.46**	-	.40**	.32**	.37**
N	181	-	334	841	-	190	78	274
Fall ('75-'76)								
Sex & RSVP Utilization	.31**	.22**	-	.21**	.21**	.22**	.32**	.29**
Age & RSVP Utilization	.16*	.14*	-	.11**	.14**	NS	.31**	NS
N	188	250	-	557	277	195	102	314
RSVP Utilization & exam score	.49**	.44**	-	.51**	.54**	.45**	NS	.39**
N	109	170	-	404	189	120	52	182

1 Sex: 1 = male; 2 = female

2 Utilization = Number of RSVP surveys sent by student

3 Exam score = % score on mid-term and end-term examinations

* Significant at .05 level

** Significant at .01 level

NS Non significant

TABLE 3

STUDENT EVALUATION OF COURSES OFFERED IN OPEN COLLEGE

WINTER 1974-75

Statement	Percent of students reporting[1]				
	Strongly Agree	Agree	Disagree	Strongly Disagree	Did not rate due to meagre Participation
I believe I could have performed just as well for this course without any telecasts.	16	23	26	32	3
I believe I could have performed just as well for this course without radio programs.	31	14	10	9	19
I believe I could have performed just as well for this course without RSVP surveys.	4	5	15	73	3

[1] 800 students participated in this evaluation.

Conclusion

RSVP is a tool, nothing less and nothing more. Human minds conceive, create and invent tools. It is again the human minds who evaluate, adopt and creatively use the tools. In the hands of an imaginative and skillful craftsman, a tool can not only accomplish what it is intended for, but go beyond intentions and discover creative, meaningful variations that might sometimes surprise even the originator. We see these possibilities for RSVP.[3] In sharing with you our experiences with RSVP, we look forward to exciting dialogues between users of RSVP.

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Report of the Commission on Non-Traditional Study. Diversity by Design, Jossey-Bass Publishers, San Francisco, California, 1973.

Footnote

1 A classification of computer programs for instruction is presented by Frank B. Baker in "Computer-Based, Instructional Management Systems: A First Look", Review of Educational Research, Vol. 41, February 1971, pp. 52-70.

2 Courses represented are Cultural Anthropology (ANT 220), Man and Environment (ECY 101 & 102), The Ascent of Man (HSC 101), Classic Theatre (HUM 204), Business Law (LAW 205 & 206) and Introduction to Psychology (PSY 211).

3 Detailed information contained in comprehensive documents on RSVP is available by contacting the authors.

PROGRAM EVALUATION IN A NEW UNIVERSITY:
THE RESULTS OF A TWO-YEAR STUDY

PRESENTED BEFORE THE
1976 STATEWIDE INVITATIONAL CONFERENCE ON
INSTITUTIONAL RESEARCH

by

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June 1976

Program evaluation may be the least frequently engaged in activity at institutions of higher learning or maybe it's just the least frequently discussed. Certainly, it is typically not the kind of study one can easily get one's hands on. Requests I have made of locales where evaluation is "advertised" have not been fruitful. What I have been able to obtain in my quests for studies which might be somewhat helpful, if not replicable, have been final reports of projects, or proposals to conduct evaluations, or suggested evaluation strategies and models. While these are all useful documents, they are not quite what I had in mind. We proceeded in our work at Florida International University, therefore, with what was felt to be an adequate theoretical base, but with an inadequate set of practical experiences to guide us: that is, we knew a great deal about evaluation, but we didn't quite know what to expect. A gross oversimplification of our conclusions would have to include statements like:

1) Now we know why reports of program evaluations are not shared,
2) No one on this Earth outside the university conducting them has probably ever received a full report of any evaluation,
   (maybe in a more serious vein)
3) Program evaluation is vital for the maintenance of standards for any university and, at the same time so problematic, that significant amounts of time and money must be allocated for its completion.

But to begin back at the beginning:

To guide our efforts, the following objectives were developed in consultation with the Academic Deans for our program evaluation efforts.

1) To orient decision making administrators to the advantages of the early development and continued use of the program evaluation process.
2) To select from the available literature an approach to evaluation which appeared to enhance program growth and development.
3) To implement the evaluation model in a limited setting while carefully monitoring its impact.
4) To make necessary modifications in the model and then utilize it in a larger setting.
5) To utilize the process university-wide for self-study purposes.

The evaluation models which were examined may be conveniently categorized as:

1. Goal attainment models
2. Judgmental models emphasizing intrinsic criteria
3. Judgmental models emphasizing extrinsic criteria
4. Decision-facilitation models.

In his book, Educational Evaluation, Popham identifies Ralph Tyler as the principal sponsor of the goal attainment model wherein specific program goals are identified, translated into measureable objectives, after which pupils are tested to determine how well each objective has been attained. A program is evaluated then on the basis of how many of its objectives have been attained. This is, of course, the approach utilized for the current National Assessment of Educational Progress.

Judgmental models emphasizing intrinsic criteria or extrinsic criteria are categorized by their focus on the role of professional judgment. The most commonly utilized illustration of the intrinsic variety of the judgmental model is the accreditation process wherein specialists from outside the school examine factors associated with the process of education with little or no attention being paid to the products of education. Thus, visiting teams count books in the library, faculty with PhD's and the number of elevators per student.

Judgmental models emphasizing extrinsic criteria, generally associated with the writings of Michael Scriven and Robert Stake, place responsibility on the shoulders of the evaluator for, among other items:

a. Distinguishing among formative and summative evaluation needs,

b. Assessing the quality of program objectives,

c. Designing means of comparing effects of different programs.

Throughout the above, attention is paid to product in addition to, or often instead of, to process.

The fourth class of evaluation models, dubbed decision-facilitation by Popham represented the focus we were looking for. Most advanced by Dan Stufflebeam when he was at Ohio State, and by the UCLA Center for the Study of Evaluation, directed by Marvin Alkin, these models stress most fundamentally, the role of evaluation in enhancing the decision making process. Essentially, they provide a methodology which both aids in raising fundamental questions which need to be asked, and provides guidelines for resolving them. In fact, the decision-facilitation process uses elements of all three approaches previously discussed. The adaption of the Stufflebeam approach and of the CSE approach which we utilized contained four stages, which appear as Figure 1 on page 11.

Stage 1 - Needs Assessment: in which the objectives for the program being evaluated are placed in the context of community needs.

Questions of concern include:

Which objectives are these other programs meeting?

Which objectives are not being met by any other programs?

How may these objectives be prioritized in light of community needs?

Stage 2 - Program Planning: in which the particular collection of courses being offered are examined in an endeavor to see their relationship to program objectives.

Questions of concern include:

How have other programs differed from this one in array of courses, institutes, training programs, etc., they have mounted to meet similar objectives?

What evidence is there that this particular array of courses is more likely to reach program objectives than any other arrangement?

Stage 3 - Program Implementation: in which difficulties encountered in the installation of any program component are identified (such as budgetary limitations, space limitations, etc.)

Questions of concern include:

Has failure to reach objectives, which is the concern of Stage 4, been due to a failure to properly implement key components of the program rather than a failure of the program itself?

Can any mid-course corrections be made to increase the liklihood that the program will be properly installed?

Stage 4 - Outcome Assessment: in which it is determined whether program objectives are being attained.

Questions of concern include:

Which objectives are not being attained?

How does this relate to the needs assessment?

Are changes needed in program planning or program implementation?

With this strategy decided upon, meetings were conducted with administration and faculty of the School of Health and Social Services and the School of Hotel, Food and Travel, the two units selected for the pilot phase of the study.

The four-stage evaluation began with a needs assessment for each program within the units. In this phase, interviews were conducted with the program developers and all literature related to the development of the program was read for the purpose of discerning the particular needs the program was established to meet. One outcome expected from this effort in addition to providing the foundation for later stages, was the appreciation on the part of the program planner of the changing nature of needs and the desirability of staying up-to-date relative to these changes. At the very least, it required planners to be aware of the rationale for the establishment of their program.

In the second phase, program planning, the rationale for the particular array of courses offered to students was explored in relationship to the needs the program was designed to meet and to other methodologies which could have been selected.
A hoped for outcome here was the development of a plan to enable cost/benefit comparisons to be conducted across the various methodologies.

In the third phase, program implementation, the mechanics of the operating program were examined to identify discrepancies between the program plan and reality. This phase is of particular importance in situations where failure to obtain objectives reflects a failure to properly install a program rather than a failure of the plan itself. This phase assisted the planners in developing methods of "flagging" problems before they were likely to have too significant an impact.

Fourthly, there was outcome assessment, in which data were collected from students participating in the program in order to obtain an indication of whether they felt the program's objectives were being attained. This information related directly back to the needs assessment phase where specific target objectives were identified.

The methodology chosen for outcome assessment was a telephone survey of graduates using specially trained interviewers. It was felt that this would significantly improve response rates.

Figure 2 summarizes the approaches utilized in each stage of the process. Figure 3 is a copy of the outcome assessment questionnaire.

As to the results of this undertaking, it is important to point out first and foremost that there now exists a climate for evaluation, a receptivity to what it can accomplish. The same chairpersons who attempted to sabotage the process through long delays and seemingly endless requests for rewrites now turn to the Institutional Research Office when an outside source asks them for follow-up data on their graduates. We've come a long way in this regard. It is recommended that the best way to prove one's objectivity and sincerity when those come into question, and our experiences suggest they will, is to conduct one phase at a time, slowly, demonstrating all the while that you are professional in your activities and in the manner in which you handle information relating to programs you are investigating. Evaluations are as much a part of the political process as they are of the research process and evaluators need tough skins as well as valid instruments.

Secondly, after overcoming all of the above, our results suggest that it is possible for data from an objective evaluation to impact a program. The response rate to out telephone survey was astoundingly high. Actually, I'm not quite sure how to go about assigning a percentage to this rate for a couple of reasons. The facts are these:

Between 50% and 60% of all 1974 graduates were reached, that is, heard our voices and we heard theirs. Of that group, all but a very small handful (less than 5%) responded to our questionnaire. We have no reason to believe that the 40% we couldn't reach on the phone (unlisted numbers, moved, out-of-state numbers, etc.) differed in any systematic way from the group which responded. So, our response rate is either 60% or 95% I lean toward reporting the latter.

The data showed program weaknesses where planners didn't know there were any. It even showed some strengths they hadn't previously known about. It revealed employment rates, salaries, and new needs graduates had themselves only recently identified. To be a bit more specific, in the School of Hotel, Food and Travel, the data led to a modification of the internship program when graduates elaborated on it in the open ended questions.

In the Health area, Social Work and Health Sciences changed some attitudes regarding job placement; Nursing received outside input supporting its course objectives; Dietetics/ Nutrition received specific suggestions on ways to strengthen its offerings; Criminal Justice received information valuable for the development of its master's program; and data were obtained to substantiate a budget request for a field experience program in sociology. This latter occurrence was particularly gratifying since the Office of Institutional

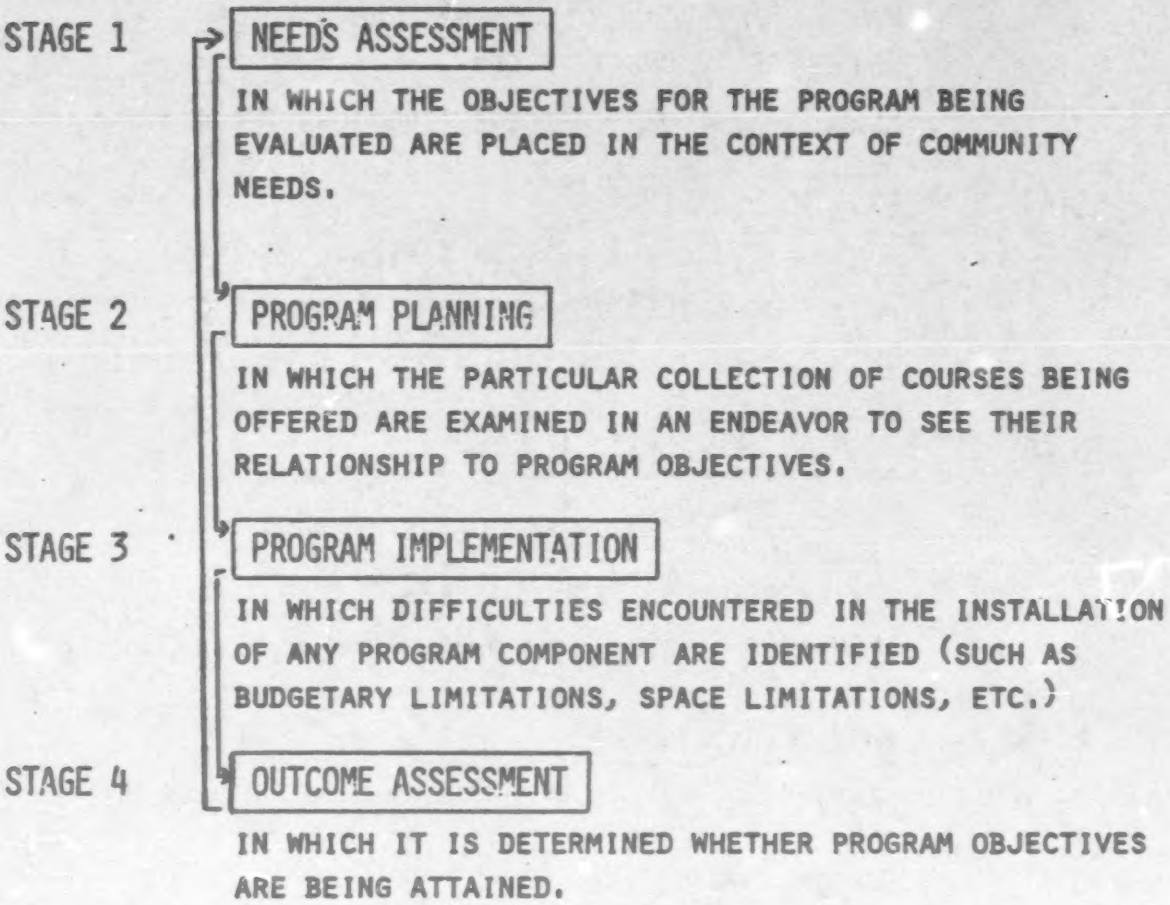
Research was both the recipient of the budget request and the planner of the study needed to objectively act upon that request.

A third conclusion relates to the other aspects of the model. It is concluded that needs assessments are probably the most difficult (and least rewarding) undertakings for on-going programs. Ideally the time to begin them is before a program is instituted so that the practice of gauging needs is built into the program design. In order to insure that on-going programs will engage in continuous needs assessment, it is necessary for the office doing the evaluation to supply the programs with simplified check lists and many guides to indicate where and how this kind of data may be obtained.

Program heads are simply not oriented toward collecting and examining needs assessment type data. The same is true of the program planning phase. Until that point when chief administrators require justification for the continuation of a given array of courses (and maybe that point is coming) there is little liklihood of program heads giving serious considerations to alternative sequences and methodologies. Program implementation results have been most informative and most useful. Program heads are accustomed to gathering this kind of information, albeit haphazardly, and rarely is anything done with this kind of data. Now we have encouraged its systematic retrieval and analysis and consequently have enabled program heads to better summarize their problems and needs.

In conclusion, it is apparent that definite progress has been made toward accomplishing the objectives originally developed for this effort. And there is reason to be optimistic.

The University is now considering a plan for the expansion of the process to the Schools of Business, Education and Technology, and to the College of Arts and Sciences. It is expected that the modified four-stage model will become fully "institutionalized" within the next five years, at which time, all year-end reports prepared by the Deans will include analyses of data relating to needs assessment, program planning, program implementation, and outcome assessment. At that point in time, the University will have come a long way toward achieving its goal of data-based decision making.



STAGE 1 **NEEDS ASSESSMENT**

IN WHICH THE OBJECTIVES FOR THE PROGRAM BEING EVALUATED ARE PLACED IN THE CONTEXT OF COMMUNITY NEEDS.

STAGE 2 **PROGRAM PLANNING**

IN WHICH THE PARTICULAR COLLECTION OF COURSES BEING OFFERED ARE EXAMINED IN AN ENDEAVOR TO SEE THEIR RELATIONSHIP TO PROGRAM OBJECTIVES.

STAGE 3 **PROGRAM IMPLEMENTATION**

IN WHICH DIFFICULTIES ENCOUNTERED IN THE INSTALLATION OF ANY PROGRAM COMPONENT ARE IDENTIFIED (SUCH AS BUDGETARY LIMITATIONS, SPACE LIMITATIONS, ETC.)

STAGE 4 **OUTCOME ASSESSMENT**

IN WHICH IT IS DETERMINED WHETHER PROGRAM OBJECTIVES ARE BEING ATTAINED.

FIGURE 1

A FOUR-STAGE APPROACH TO PROGRAM EVALUATION.

STAGE 1 NEEDS ASSESSMENT

Interviews with program developers
Review of all related literature
Review of Community needs.

RESULT: Statement of objectives for the program.

STAGE 2 PROGRAM PLANNING

Justification for particular array of courses
Review of alternate approaches costs/benefit analysis.

RESULT: Establishment of program to meet objectives.

STAGE 3 PROGRAM IMPLEMENTATION

On-site review
Interview with key persons
Review of budget/expenditures.

RESULT: Decision as to whether program is on target.

STAGE 4 OUTCOME ASSESSMENT

Research design to determine whether objectives are being met
Descriptive survey
Experimental, quasi-experimental study

RESULT: Determination of which objectives have been achieved.

FIGURE 2

EVALUATION APPROACH FOR EACH STAGE OF THE PROGRAM EVALUATION PROCESS.

Telephone Survey

Student's Program_______________
Time(s) Called_______________

SECOND FOLLOW-UP
OUTCOME ASSESSMENT
GENERAL QUESTIONS/GRADUATES*
SPRING AND SUMMER QUARTERS, 1974

1. Are you employed?

_____Yes, full-time
_____Yes, part-time,(please answer 1a below).
_____No, why not? (please skip to question 11)

1a. Are you employed less than full-time because full-time employment is not available or because you prefer part-time employment?

_____Full-time employment was not available.
_____Prefer part-time work.

2. Are you employed in your career field?

_____Yes
_____No, please explain

3. For whom do you work?____

4. What is your job title?____

5. For how long have you held this position?________________________________

6. Is this the same job you had before you got your degree from FIU?

_____Yes _____No

7. What is your current salary?____

8. What other positions have you held since you graduated from FIU?

______________________________ ______________________________
______________________________ ______________________________

9. What are your feelings about your current job? (Would you rate it excellent, good, satisfactory or unsatisfactory).

_____It is an excellent position
_____It is a good position
_____It is satisfactory, but does not meet my expectations.
Please indicate why:
_____Salary too low
_____Poor working conditions
_____No advancement possibilities
_____Other (Please specify).

10. Did your program at FIU provide you with the skills you need in your current position?

_____Yes
_____No, please explain (what skills were not provided)

11. What was your major at the University?________________________________

12. Do you feel your FIU program adequately prepared you for the near future?

_____Yes
_____No, please explain.

13. Looking back, what do you consider to have been the important strong points of your program?____
____

14. What were the weak points of your program?______________________________
____

FIGURE 3

OUTCOME ASSESSMENT
QUESTIONNAIRE

15. Do you have any suggestions for improving the programs in which you were enrolled at FIU?____

____

16. If you could add something to the curriculum, what would that be?

____

17. Do you feel the need for additional work at FIU?

_____ Yes
_____ No

18. If so, what kind of courses would be most helpful?____________________

____

19. Are you presently enrolled in a graduate program at a university?

_____Yes, which university______________________
_____No Program:______________________

20. If you are not enrolled, do you plan to enroll in a graduate program at a university in the near future?

_____ Yes _____No

21. In the space below, please add any other comments you care to make about your FIU experiences, now that you have been away for a couple of years.

____

____

____

____

THANK YOU VERY MUCH!!!!!

*If student was not available, who was interviewed?______________________

Student's name______________________
Address______________________
City, State______________________

REDUNDANCY AND DIFFICULTY

THE FLORIDA TWELFTH GRADE TEST
AND
THE COLLEGE-LEVEL EXAMINATION PROGRAM

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Paper Presented to the
Inter-Institutional Research Conference
Orlando, Florida 1976

ABSTRACT

The comparison of the College-Level Examination Program (CLEP) and the Florida Twelfth Grade Test was designed to determine the number of underlying constructs common to both batteries, the extent of the redundancy between the batteries, and the comparability of the item characteristics for similar tests within the batteries.

The data for the study were collected between June and December, 1974, and included scores for the students (252 Ss) who wrote the Florida Twelfth Grade Test and all five of the CLEP General Examinations. A canonical variate analysis was conducted to establish the number of traits common to both batteries. The Stewart and Love redundancy index was computed as a measure of the degree to which the batteries overlap. Separate item analyses were conducted for the tests within the batteries.

The results of the analyses indicated that the batteries shared four similar constructs representing a general ability factor and achievement in verbal, quantitative, and science skills. It was concluded that the tests measured similar processes, but tests within the CLEP battery were more difficult. If general achievement batteries are to be used for the placement of students at the college level, either battery would suffice assuming the differences in difficulty were taken into account.

REDUNDANCY AND DIFFICULTY:

THE FLORIDA TWELFTH GRADE TEST
AND
THE COLLEGE-LEVEL EXAMINATION PROGRAM

For twenty years, scores from the Florida Twelfth Grade Test have been the major determinant for admission to the state universities of Florida. Over ninety percent of the graduating high school seniors take the test, and about half of those students continue at a postsecondary institution.

There is considerable controversy over the appropriate use of achievement test batteries. The controversy has intensified recently due to the expanded use of the College-Level Examination Program (CLEP). This program was designed in 1966 as a measure of achievement attained by persons outside an academic environment. The intent of the CLEP was to provide a mechanism for awarding credit for knowledge gained by persons with experience in the work force or elsewhere. In the State of Florida, there has been strong legislative pressure toward an accelerated college degree program. As a result, five of the ten leading nationwide users of CLEP are educational institutions located in Florida. Most of the students seeking CLEP credit have been high school seniors or college freshmen. It appears that relatively few are older persons returning to the colleges. Therefore, the Florida Twelfth Grade Test (FTGT) determines eligibility for admission to the university system, and CLEP is used for placement of the same students.

Comparative Study

Information on the statistical properties of the tests was compiled from reports by the Testing Division of the Office of Instructional Resources and the College Entrance Examination Board. These statistics (Table 1) represent the properties of the norming population for the batteries. Comparable data for the sample groups is presented in Table 1.

Table 1
Comparable Statistical Properties
of FTGT and CLEP General Examinations*

Subject	Items	Time	Reliability	Standard Error of Measurement
FTGT Aptitude	100	40	.93	4.18
FTGT English	85	40	.94	3.71
CLEP English	95	60	.92	31.00
FTGT Social Science	65	40	.92	3.30
CLEP Social Science	90	60	.92	28.00
FTGT Natural Science	60	40	.89	3.09
CLEP Natural Science	85	60	.91	30.00
FTGT Mathematics	60	40	.92	2.97
CLEP Mathematics	80	60	.95	24.00
CLEP Humanities	90	60	.91	32.00

*CLEP scores are based upon a standard score scale with a range from 200 to 800. The mean is set at 500 and the standard deviation at 100. The FTGT scores are reported by percentile rank. The statistics are derived from the raw scores. The difference in scoring accounts for the differences in the size of the standard error of measurement. Reliabilities for the Florida Twelfth Grade Test were estimated by the split half method and the Spearman-Brown correction formula. The Kuder-Richardson formula 20 was used to compute reliabilities for the CLEP battery.

Purpose of the Study

This study will address the problem of determining the comparability of the two test batteries in order to determine the degree to which the batteries may be used interchangeably. Comparability will be established by an examination of the underlying structure of the batteries, the degree of redundancy between the batteries, and the item characteristics of the batteries.

Comparative Study

Astin (1972), in a review of the CLEP, stressed the need for comparative studies of the CLEP with established batteries. Given the variety of measurement needs (e.g. admissions, advanced placement, institutional self study and evaluation), Astin suggested studies which might determine the comparability of the CLEP with other similar test batteries in order to simplify testing procedures.

It is important that comparative studies consider the original purpose of the tests as well as their evolved use. Other factors also bear upon the comparability of tests. Similarities in content and difficulty level influence the predictive validity of the batteries. The test reliability and the effectiveness of a test in discriminating between students of varying abilities must be determined. All of these considerations relate to the appropriate use of the tests.

The Sample

The Educational Testing Service was requested to release CLEP scores for the University of Florida students tested between June and December, 1974. This record was matched against a computer tape record of University of Florida students who had posted Florida Twelfth Grade Test scores for 1973. The selection process resulted in a sample of 252 Ss who had written all five CLEP General examinations and the Florida Twelfth Grade Test. Three parallel forms of the CLEP battery had been administered during the time period. It was decided to use the scores from all three forms to establish the correlations between the batteries. Item analyses were conducted using the scores from two of the CLEP forms which represented over two hundred subjects.

The Procedure

A two part analysis was conducted, first to determine the canonical correlations between the underlying traits common to the batteries, and secondly, to explore the characteristics of the tests which affect the magnitude of the correlations by item analyses of the tests. The Stewart and Love redundancy index will be reported as a measure of the overlap of total test variance between the batteries.

The focus of the study was upon the correlations between the batteries, not upon developing equivalent scores. The present concern is to examine the similarities of the batteries as they are currently used.

Results and Discussion

The analyses have indicated that substantial similarity exists in the structure of the batteries. The four statistically significant canonical correlations can be interpreted to clarify these relationships (See Table 2).

Table 2
Results of Statistical Tests of Canonical Variates

Canonical Roots	Chi Squares	Degrees of Freedom	Probabilities
.683	282.666	11	0.01
.512	176.597	9	0.01
.392	122.325	7	0.01
.130	34.182	5	0.01
.027	6.843	3	
.004	1.164	1	

Loadings on the Variates

The first canonical relation has high loadings from each of the original tests (See Table 3). The fact that no specific test is preponderant would imply that there is a common thread running through each battery. Undoubtedly, this thread is akin to a general ability factor. Subsequent canonical relations are more closely identified with achievement in specific subject areas. The second set of canonical variates has high loadings for the CLEP mathematics test and the Florida mathematics and quantitative ability tests. A verbal achievement variate emerges as the third canonical relation. High loadings for the English tests and moderate loadings from CLEP humanities and Florida Twelfth Grade verbal analogies combine to create this relation. The last statistically significant set combines moderate loadings from the English and natural science tests.

Redundancy Index

The clearly defined patterns resulting from the canonical variate analysis confirmed the similarity of the batteries' structures. Another perspective on the comparability of the test batteries is attained by examining the total redundancy between the test batteries (See Table 4). The canonical correlations represent the variance shared by the linear composites not by the original variables. The redundancy index is a measure of the total overlapping variance of the batteries. Within that context, it can be stated that there is substantial redundancy between the batteries. There is a forty-nine percent overlap in variance in either set of variates given the other set. As expected, the greatest

Table 3

Matrix of Loadings on Canonical Variates for the CLEP and FTGT

A-Structure CLEP	1	2	3	4
English	.66	-.25	.60	.27
Biological Science	.69	-.22	-.39	.32
Physical Science	.75	-.02	-.48	.26
Mathematics	.76	.65	.01	-.04
Humanities	.66	-.39	.29	.03
Social Science	.79	-.40	-.16	-.38
B-Structure FTGT	1	2	3	4
Verbal Aptitude	.72	-.16	.35	.03
Quantitative Aptitude	.67	.57	.09	.03
English	.60	-.14	.67	.24
Social Science	.78	-.41	-.24	-.38
Natural Science	.72	-.07	-.49	.49
Mathematics	.72	.62	-.02	-.14
Roots	.68	.51	.39	.13
Canonical Correlations	.83	.72	.63	.36

overlap is contained in the general ability variate. Slightly less than three-fourths of the total redundancy is contained in the first variate for either set. The remaining redundancy decreases along with the variance extracted by the next three canonical variates.

The fact that the redundancy index posits a symmetric relationship between the batteries implies that either battery would predict scores on the other with equal efficiency. Predictions for the specific subject factors would be based upon a relatively small amount of variance. Therefore, a combination of the general ability component with the subject components would make a more reliable predictor.

Table 4

Components of the Stewart and Love Redundancy Measure

Canonical Roots	R_c	R_c Squared	Variance Extracted	Redundancy	Proportion of Total Redundancy
CLEP as Criterion Set					
1	.826	.683	.516	.353	.718
2	.716	.512	.140	.071	.146
3	.626	.392	.140	.055	.112
4	.360	.129	.064	.008	.017
5	.165	.027	.076	.002	.004
6	.068	.004	.061	.000	.000
FTGT as Criterion Set					
1	.826	.683	.493	.337	.694
2	.716	.512	.154	.079	.162
3	.626	.392	.145	.056	.117
4	.360	.129	.077	.010	.020
5	.165	.027	.076	.002	.004
6	.068	.004	.052	.000	.000

Note: Total variance extracted from CLEP = .997; $\bar{R}$, total redundancy for CLEP, given FTGT = .491. Total variance extracted from FTGT = .997; $\bar{R}$, total redundancy for FTGT, given CLEP = .486.

Item Analyses

The statistics derived from the item analyses were based upon raw, uncorrected scores. Means and standard deviations are reported below in Table 5 (See Table 5).

Table 5

Subject Test Means and Standard Deviations for the Sample Population

Subject Test	Mean	Standard Deviation	Number of Items
English			
CLEP FC 13	48.65	12.36	95
CLEP FC 25	50.84	10.25	95
FTGT VRT	63.21	9.54	85
Social Science			
CLEP FC 15	40.30	10.21	90
CLEP FC 21	41.20	9.80	90
FTGT VRT	43.81	6.91	65
Mathematics			
CLEP FC 13	47.33	10.66	80
CLEP FC 25	48.00	10.21	80
FTGT VRT	38.70	7.19	60
Natural Science			
CLEP FC 13	39.58	10.56	85
CLEP FC 25	43.35	9.56	85
FTGT VRT	38.70	7.19	60

An understanding of the conditions which influence the magnitude of the correlations between sets of variables is achieved by reviewing the results of the item analyses. There are many sources of error in the measurement of true scores on tests which can distort correlations between similar tests. The size of correlation coefficients is affected by differences in the administration of tests, the motivations of the students, guessing and scoring practices (Magnusson, 1967, pg. 101). Traditional measurement theory assumes that these sources of error are uncorrelated and normally distributed. These factors are likely to have attenuated the correlations reported in the study. But, these sources of error are integral parts of the testing programs. Therefore, comparisons of test reliabilities are made without correction for attenuation due to measurement error.

Examining the internal consistency of the tests raises another issue. The internal consistency of the tests is a function of the length of the tests and the intercorrelations of the items. It is interesting to note that while the Florida Twelfth Grade Test has fewer items than the CLEP, reliabilities for the two batteries are not dissimilar (See Table 6). Adjusting the differences in test length would minimize the differences which appear in the results.

The average difficulties of the testing programs and their relative ability to discriminate among students is crucial to the comparison of the test batteries. Differences in the difficulty levels of similar tests reduce their correlation. It is apparent that the CLEP battery is more difficult than the Florida Twelfth Grade Test (See Table 6). The mathematics tests are closest in difficulty level. The CLEP English tests and natural science tests are of average difficulty, and the CLEP social science test is somewhat more difficult. The Florida Twelfth Grade English and social science tests have a much lower average difficulty than their counterparts on the CLEP battery. The Florida English test is in fact the easiest achievement test on either battery for these students.

The ability of an item to discriminate between low and high scoring students is a crucial attribute. Very easy or very difficult items will not discriminate well between students. A comparison of the average discriminating ability of the items in comparable tests indicate that both batteries tend to include items which have similar power to discriminate. While average discrimination levels may be slightly higher for the CLEP battery, differences between the two forms of the CLEP are as great between CLEP and the Florida Twelfth Grade Test (See Table 6).

Table 6

Statistical Properties
of the CLEP and FTGT for the Sample

	Form Code	Standard Error	Difficulty	Reliability	Discrimination
English	CLEP FC 13	4.[illegible]	50	.88	.34
	CLEP FC 25	4.22	53	.83	.25
	FTGT VRT	3.56	74	.86	.27
Social Science	CLEP FC 15	4.08	44	.84	.27
	CLEP FC 21	4.27	45	.81	.26
	FTGT VRT	3.38	66	.76	.26
Mathematics	CLEP FC 13	3.84	58	.87	.33
	CLEP FC 25	3.82	59	.86	.31
	FTGT VRT	3.13	64	.81	.29
Natural Science	CLEP FC 13	4.08	46	.85	.31
	CLEP FC 25	4.04	50	.82	.28
	FTGT VRT	3.32	58	.76	.27

Conclusions

The comparability of the test batteries was established in two stages. First, a canonical variate analysis was undertaken to find the underlying traits common to both batteries. It was concluded that four traits were held in common. These traits were identified as a general ability factor, and mathematical, verbal, and science achievement factors. As part of the canonical analysis, the Stewart and Love redundancy index was computed. The index gives a measure of the proportion of total variance that may be predicted by one test battery of the other battery. Thus, it is a measure of a total overlap in variance as well as a measure of symmetry between the batteries. There was forty-nine percent overlap in variance for either test, signifying a symmetric relationship between the batteries. Therefore, either battery would predict about half of the variance in the other. The strongest relationship was between the general ability factors followed by mathematics, verbal achievement and natural science factors.

The symmetric relationship between the tests and the distribution of the variance within each battery is evidence of the similarity in content between the CLEP and the Florida Twelfth Grade Test. It must be recognized that substantial variance unique to each battery is also present.

The correlations between the original tests as well as between the canonical variates were moderately, but not extremely high.

The conditions under which these batteries were compared would tend to maximize the differences between them. The CLEP includes a correction for guessing in the scoring formula, the Florida Twelfth Grade Test does not. The batteries are of unequal length and no correction factor was used to estimate the results given tests of equal length. Finally, no correction for attenuation was used. In spite of this deliberate attempt to allow the differences between the batteries to become clear, the similarities are more apparent. The reliabilities for each battery are similar and differences may be attributed to differences in the length of the tests. The results of the item analyses indicate that the major difference between the two testing programs is in the difficulty level of the tests. The CLEP has more items with a high level of difficulty than does the Florida Twelfth Grade Test. The differences in the difficulty levels as Linn(1975) suggests, reduce the correlations between tests which are in fact similar in content.

The tests do measure similar content. However, the Florida Twelfth Grade Test is less difficult. Therefore, cutoff levels for the Florida battery for awarding advanced placement credit should be higher than cutoff on the CLEP. A predictive validity study has already been conducted for the Florida Twelfth Grade Test Honors Program. The results of that study have confirmed the predictive validity of scores of 475 or above on the Florida Twelfth Grade Test. The predictive validity of the CLEP has been established for students achieving scores above the 50th percentile of the nationally normed sample. Other studies would be necessary to confirm the validity of using lower Florida Twelfth Grade scores for placement purposes. It should be emphasized that the results only relate to University of Florida students. The results are not generalizable to other university student populations.

Do Not Equate

An equating study resulting in score conversion tables could be undertaken. However, error would be expected in the equated scores. The correlations between comparable subject tests do not meet the usual standard of a .95 correlation between the tests. A more conservative approach would be to avoid actual score conversions. The Florida Twelfth Grade Test does identify high achieving students. If the cutoff for awarding credit is high on the Florida battery, the necessity for equated scores is obviated.

Advanced placement through CLEP or the Florida Twelfth Grade Test has been granted in recognition of a general achievement in the field being tested. Either battery may be used for this purpose within the limits stated. However, the predictive validity of a specific score for a specific course has not been established for either testing program. The tests are not a measure of knowledge of content specific to an individual course. The philosophical argument of the legitimacy of granting credit using the mechanism of general achievement batteries remains.

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SUMMARY OF RESEARCH CONDUCTED ON THE COLLEGE LEVEL EXAMINATION PROGRAM (CLEP) GENERAL EXAMINATIONS BY THE STATE OF FLORIDA CLEP TASK FORCE

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Presented at the Florida Invitational Conference on Institutional Research, June 17-18, 1976, in Orlando, Florida.

Summary of Research Conducted on
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Abstract

This is a five-year longitudinal study, the primary objective of which was to assess the educational validity of granting credit through the CLEP. For one design, five community colleges selected experimental and control groups using a matched-group design. In a second design, students were selected who wrote the examinations and scored between the 25th and 49th percentile but did not receive credit and compared with others who did receive credit. Results indicate that students receiving CLEP credit compare favorably on selected dependent variables with like students not receiving CLEP credit. The data in this report represent student progress through two years of higher education.

Introduction

The Task Force to Study Achievement of Students Granted Credit through the College Level Examination Program (CLEP) was charged by the State Articulation Coordinating Committee in April, 1973 with conducting a longitudinal study of the relationships between student achievement and the awarding of credit through the College Level Examination Program. Two major designs were developed by the Task Force to carry out this charge.

Design I is a longitudinal study of students who enrolled originally at a community college and earned credit at the fiftieth percentile on college sophomore norms through the CLEP program and which follows their academic progress in the State University System. Design II is also a longitudinal study which follows the academic progress of community college students who wrote the CLEP examinations, but who received credit for scores at the twenty-fifth percentile on college sophomore norms.

Background and Significance

The College Level Examination Program, a national testing program used for awarding college credit through the process of standardized multiple-choice examinations, has been in operation for approximately ten years. The number of candidates writing the examinations has increased markedly during the past few years, and the Program has become quite popular with students throughout the country. In the State of Florida, approximately 11,831 students attempted the examinations and 175,369 quarter hours of college credit were awarded during academic year 1973-74. The expanding use of the CLEP examinations for awarding college credit has several important implications for the Florida higher educational system: a financial impact on state funding requirements, the potential savings to students in tuition fees, and the time gained by students as their education is accelerated.

An earlier study by (Losak & Lin, 1973) indicated that students earning CLEP credit progress at a faster rate than students of similar academic potential without CLEP credit, while at the same time not showing any significant decrease in later academic achievement. But critics of the CLEP program point out that courses represented by the General Examinations are not necessarily prerequisite for any particular advanced courses. Therefore, assessment of progress in advanced courses may not be a legitimate dependent variable on which to evaluate the effects of CLEP credit on student academic achievement. The content validity of the CLEP program has also been questioned, especially the mathematics examination. The College Entrance Examination Board, in cooperation with Educational Testing Service, is now in the process of establishing new norms for the CLEP program with more rigorous content sampling as one of the objectives.

Purpose - Design I

The primary purpose of Design I was to compare the academic progress of two groups of students with similar Aptitude scores on the Florida Twelfth Grade Test: one group which received college credit through the College Level Examination Program (CLEP Group) and another group which did not attempt to receive credit through use of the CLEP examinations (Non-CLEP Group).

Procedures - Design I

Five community colleges contributed data for Design I of the study. The number of students in the CLEP and Non-CLEP Groups from each college is presented in Table I.

TABLE I

NUMBER OF STUDENTS IN SAMPLE BY COLLEGE

School	CLEP Group	Non-CLEP Group	Total
Daytona Beach Community College	16	16	32
Florida Junior College	51	51	102
Miami-Dade Community College	50	50	100
St. Petersburg Junior College	50	50	100
Valencia Community College	50	50	100
Total	217	217	434

Students were selected for the CLEP Group on the basis of having written and received credit for the College Level Examination Program during the calendar year 1972, with the further requirement that they had previously written the Florida Twelfth Grade Test (FTGT). In general, these students were first-time-in-college freshmen, who were born during the years 1953-55.

The Non-CLEP Group was selected by matching students in the CLEP Group with other community college students of similar age and sex, and having comparable scores on the Aptitude section of the FTGT, but who did not attempt to receive credit through the CLEP examinations. Details of the matching procedure, which varied slightly among colleges, are provided in the Appendix. Thus, it was assumed that the basic difference between the two groups for the purpose under study was whether the students had taken the CLEP examinations and received credit for their performance.

The dependent variables of graduation rate, grade point average, and rate of academic progress through the college were chosen by the Task Force as factors reasonably obtainable from academic records.

Graduation was determined by counting only those students to whom each college officially awarded a degree. Grade point average was obtained from official transcripts and does not include CLEP credit. The grade point average for each group was calculated by adding grade point averages recorded for all students and obtaining a group mean.

Rate of progress in college was calculated on the basis of months elapsed between enrollment and graduation, assuming four months for each major term, and two months for each short term. For example, if a student enrolled during the Fall Term, 1972 and graduated at the end of the Winter Term, 1974, he would have taken 20 months (fall, winter, spring, summer, fall, and winter) from enrollment to graduation using this definition.

Results - Design I

A summary of the characteristics of the CLEP and Non-CLEP Groups and an analysis of differences on selected variables between the two groups are presented in Table II. The mean number of credit hours awarded to the CLEP Group is virtually equivalent to a full semester of college credit. The number of credit hours attempted and earned through college enrollment by the CLEP Group was approximately four hours more than the hours for the Non-CLEP Group.

While it was assumed that matching of the two groups on the basis of FTGT Aptitude scores would assure reasonable equality on other variables, such equality did not in fact occur. The CLEP Group had significantly higher FTGT scores in English, Social Science, Natural Science, and in Total score. Despite these differences in FTGT scores, both groups had Total scores which placed them in the top 20 percent of students who write the Florida Twelfth Grade Test. The CLEP Group grade point average of 3.07 was also significantly higher than the

2.83 grade point average earned by the Non-CLEP Group.

TABLE II

CHARACTERISTICS OF CLEP AND NON-CLEP GROUPS

Variable	CLEP Group (N-217)			NON-CLEP Group (N-217)			t-test
	N	M	Standard Deviation	N	M	SD	
Age **	216	18.50	2.01	217	18.29	0.90	
Terms Enrolled	217	5.67	2.37	217	5.71	2.82	
Hours Attempted	217	45.19	16.67	216	41.79	23.14	
Hours Earned	217	44.43	16.95	216	40.53	23.84	
Hours CLEP	217	14.07	8.42	0	0.0	0.0	
Total Hours Earned	217	60.00	17.90	217	41.13	23.77	
Grade Point Average	217	3.07	0.59	217	2.83	0.80	3.65*
F.T.G. ** Aptitude	216	84.85	11.20	216	84.27	11.39	0.53
F.T.G. English	216	82.33	14.67	216	78.40	15.58	2.70*
F.T.G. Social Science	213	84.06	13.52	214	78.94	15.48	3.64*
F.T.G. Natural Science	212	82.91	13.22	214	76.65	18.37	4.03*
F.T.G. Math	215	82.20	13.86	216	80.53	15.44	1.18
F.T.G. Total	213	415.18	49.75	214	400.15	55.64	2.54*

*Significant at $P \leq .05$
**Matching Variables

Table III contains a breakdown of the kind of degrees awarded to members of each group through May, 1975. The CLEP Group had a graduation rate of 61.29% which was twice as high as the graduation rate for the Non-CLEP Group of 31.34%. In comparing the length of time that graduates of each group attended college prior to receiving their degrees, it was found that the Non-CLEP Group graduates took 4.37 months (one full semester) longer to graduate than the members of the CLEP Group.

TABLE III

DEGREES EARNED BY THE WINTER TERM, 1975

	CLEP Group (N-217)		Non-CLEP Group (N-217)	
Degree	N	%	N	%
AA Degree	123	56.68	58	26.73
AS Degree	10	4.61	10	4.61
Other Degree	0	0.00	0	0.00
Planned Certificate	0	0.00	0	0.00
Total Graduated	133	61.29	68	31.34

Discussion - Design I

Most of the students from both the CLEP and Non-CLEP Groups are no longer enrolled at their original community college. A check of enrollment for the Fall Term, 1975 reveals that 20 (9.2%) of the 217 CLEP Group members are currently enrolled, while 27 (12.4%) of the 217 Non-CLEP Group members are currently enrolled. It is, therefore, reasonable to assume that results as reported for each group are final enough for interpretations to be made with respect to their community college progress.

Although both groups of students had FTGT scores well above scores for the typical community college enrollee, for reasons unknown, the students in the Non-CLEP Group did not elect to seek college credit via examination. Their decision may reflect motivational or attitudinal differences not considered by the present study, or it may simply reflect a lack of awareness of the CLEP program.

The results from Design I clearly indicate a higher and accelerated graduation rate as well as a higher grade point average for the students in the CLEP Group as compared with the Non-CLEP Group. These findings further corroborate those reported in the Losak and Lin study previously cited. It can be conservatively concluded that those students who received CLEP credit at the fiftieth percentile on college sophomore norms were not placed at an educational disadvantage in comparison with students of similar academic potential when the comparison is made on rate of graduation and progress in the respective community colleges. The initial differences in FTGT scores earned by each group preclude a strong conclusion regarding the relationship between CLEP credit and grade point average.

The initial charge of the Articulation Coordinating Committee requires continuing study of the students in both the CLEP and Non-CLEP Groups as they leave the community college and enroll in the State University System. The CLEP Task Force plans to monitor the academic achievement of students from both groups, and to this end has already engaged the cooperation of the University Registrars who will supply yearly transcripts beginning in June, 1976 for those students who have enrolled in their respective institutions. The Task Force will continue to report on the academic progress of students from each group during the next three years.

Purpose - Design II

The purpose of Design II was to compare the academic progress of two groups of community college students, both of which wrote the CLEP examinations and earned similar scores, but one group was awarded credit (Credit Group), while the other group received no credit for a similar performance (Non-Credit Group).

Procedures - Design II

Miami-Dade Community College was the only community college having a sufficient number of students who met the criterion to be included in the population studied. Therefore, the student sample in Design II consisted solely of students who matriculated at Miami-Dade.

From July, 1970 to September, 1972, Miami-Dade Community College awarded credit for scores at or above the twenty-fifth percentile (college sophomore norms) on the CLEP examinations as recommended by the American Council on Education. With the implementation of the Articulation Coordinating Committee Agreement regarding the CLEP program in September, 1972, the cut-off score for awarding credit was raised to the fiftieth percentile on college sophomore norms.

The students selected for study in Design II were those who scored between the twenty-fifth and forty-ninth percentiles, with no more than one score between the fiftieth and sixtieth percentiles, and no score above the sixtieth percentile.

The Credit Group consists of those students who wrote the CLEP examinations between July, 1970 and November, 1971 and were awarded credit for scores between the twenty-fifth and forty-ninth percentiles. Initially, there were 249 students in the Credit Group, but incomplete data reduced the final number of students to 191.

The Non-Credit Group consists of the 159 students who wrote the CLEP examinations during the time period from September, 1972 to June, 1973 and who earned scores between the twenty-fifth and forty-ninth percentiles, but received no credit, since the cut-off score for awarding credit had been raised to the fiftieth percentile.

The dependent variables determined by the Task Force for Design II were grade point average, rate of graduation, and rate of academic progress through college. These were operationally defined in the same manner as for Design I.

Results - Design II

A summary of the characteristics of the Credit and Non-Credit Groups and an analysis of differences on selected variables between the two groups are presented in Table I.

TABLE I

CHARACTERISTICS OF CREDIT AND NON-CREDIT GROUPS

	CREDIT Group (N-191)			Non-CREDIT Group (N-159)			
Variable	N	M	Standard Deviation	N	M	SD	t-test
Age	189	24.03	9.23	155	21.58	6.90	
Hours CLEP	191	13.38	6.74	0	0.0	0.0	
Grade Point Average	191	2.77	0.76	159	2.94	0.72	-2.12*
F.T.G. Aptitude	112	62.19	20.50	84	62.88	18.20	-0.25
F.T.G. English	112	59.68	20.27	34	60.14	19.20	-0.16
F.T.G. Social Science	87	64.72	20.97	75	65.12	17.21	-0.13
F.T.G. Natural Science	87	64.67	20.46	75	61.44	18.22	1.05
F.T.G. Math	110	61.10	24.46	84	63.02	18.78	-0.60
F.T.G. Total	87	326.29	74.26	75	317.27	66.59	0.81

*Significant at $P \leq .05$

The two groups did not differ significantly in their scores on the Florida Twelfth Grade Test and thus are quite similar in terms of academic aptitude as measured through standardized testing.

There is approximately three years difference in mean age between the two groups which can be attributed to the earlier enrollment of the Credit Group at Miami-Dade.

The Non-Credit Group grade point average of 2.94 was significantly higher than the 2.77 grade point average for the Credit Group. It should be noted that CLEP credits do not earn quality points and, therefore, neither increase nor decrease the grade point average.

A breakdown of the degrees earned by graduates from each group is presented in Tables II and III. Through May, 1975, 56.5 percent of the Credit Group and 47.8 percent of the Non-Credit Group had graduated from Miami-Dade.

TABLE III

GRADUATION BY DEGREE FOR NON-CREDIT GROUP

Degree	Non-Credit Group (N-159) N	%
AA Degree	54	34.0
AS Degree	21	13.2
Other Degree	0	0.0
Planned Certificate	1	0.6
Total Graduated	76	47.8

TABLE II

GRADUATION BY DEGREE FOR CREDIT GROUP

Degree	Credit Group (N-191) N	%
AA Degree	89	46.6
AS Degree	16	8.4
Other Degree	3	1.6
Planned Certificate	0	0.0
Total Graduated	108	56.5

There were 13 students from the Credit Group (6.8%) and 20 students from the Non-Credit Group (12.6%) enrolled at Miami-Dade during the Fall Term, 1975. Comparisons between Tables II and III should not be made at this time since the Credit Group has been in college for a longer period of time. The results will be analyzed again in May, 1976 at which time nearly all of the students will have either graduated or no longer be enrolled, to determine any differences in the graduation rate for the two groups. Rate of progress in college will also be further analyzed at that time. A current analysis of time enrolled at Miami-Dade as measured by the number of months between enrollment and graduation indicates that the graduates of the Credit Group were enrolled for 25.61 months, while the graduates of the Non-Credit Group were enrolled for 31.76 months.

Discussion - Design II

The change in cut-off scores at Miami-Dade provided a unique opportunity for a comparison of the Credit and Non-Credit Groups which eliminated the factor of motivation related to applying for and taking examinations. It is assumed that the students in each group were equally motivated since they sought credit through the CLEP examinations. The fact that both groups scored at similar levels on the CLEP examinations is a further argument against initial differences between the two groups.

The preliminary analysis of the data suggests that students awarded CLEP credit make more rapid progress through the community college and graduate at a higher rate, but with a grade point average which is significantly lower than the grade point average earned by students who did not receive credit for the CLEP examinations. Further interpretation of the data and their implications for the Florida higher education system should not be undertaken until the final report of Design II of the Task Force is presented.

In addition to the brief Appendix which follows, more complete information regarding background and development for each study, including forms developed by the Task Force, and Minutes of Task Force meetings may be obtained upon request to the Chairman of the Task Force.

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MID-POINT TESTING PROGRAM

BEAUTY OR BEAST?

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Paper Presented to the
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Orlando, Florida 1976

ABSTRACT

MID-POINT TESTING PROGRAM:
BEAUTY OR BEAST?

Limitations on enrollment in upper division units within the State University System of Florida may well give impetus to the development of a mid-point (end of sophomore year, beginning of junior year) testing program for all baccalaureate students. This paper examines the purpose(s) such a program might serve: screening, certification, placement, accountability or degree by examination.

MID-POINT TESTING PROGRAM:
BEAUTY OR BEAST?

During the past two years, decreases in state revenues and increasing costs in materials and services have put a severe financial strain on the institutions of higher education in the State of Florida. As the result of decreasing resources, limitations on enrollment are being considered in some institutions, and have become realities in others. The universities' open door to all who hold associate degrees from state community colleges may well be closing to some.

If an institution must begin limiting enrollment to all upper division programs, then careful and thoughtful consideration must be given to how students are to be selected. One alternative would be to espouse the democratic procedures of selection by lottery, an alternative championed by some in the legislature during the 1976 session.

Most of us, having been subjected to a long series of admission requirements, may find that this procedure, although attractive from a populist point of view, would be difficult to defend to our faculties and students. A second alternative which has been proposed and discussed in several circles is the establishment of a mid-point (end of the sophomore year-beginning of the junior year) testing program. It is to this proposal that I would like to address my comments by examining some of the issues involved.

It would seem on the surface that the major issue involved in establishing such a testing program would be the selection or development of the instruments to be used. However, before test selection or development can be undertaken the purposes for such an examination should be clearly stipulated. A realm of possibilities exist in terms of purpose.

Screening

The selection of students by administering aptitude and/or achievement measures could be the major purpose of such a program. The question becomes, screening for what? The State University System now uses standardized admission tests for incoming freshmen which provide measures identified as aptitude, ability, or educational development (Florida Twelfth Grade Test, American College Testing, Scholastic Aptitude Test). Whatever the name, each of these tests reveal a large general intelligence component with ancillary verbal and quantitative measures when submitted to factor analysis. These global measures have been used to sort out from the general secondary school population those who score high on such tests.

However, it is not reasonable to assume that screening for an elitist population should be the purpose of a mid-point examination. One could propose the reverse approach be made, that the screening be done to eliminate only the weakest of students who score very low on such measures. Either purpose, to skim off the top or eliminate the bottom of the range for a test which measures basic intelligence factors would deny the very purpose of the associate degree. As our own Council of Deans concluded, a mid-point examination should measure the achievement of students who have concluded a general education program, not their general aptitude. Attractive as this stance may be, it presents serious problems for those of us who are responsible for providing input into the decisions for such a testing program. Basically, the Council of Deans' decision makes two assumptions. First, that there are easily identifiable objectives and content which are common to all general education programs throughout the state institutions of higher education which could be used to develop specifications for achievement measures. Secondly, that general education programs are a necessary prerequisite for success in upper division liberal arts and professional programs. Neither of these assumptions are valid. There is no common set of precisely described goals for general education, nor has anyone defined a body of information or a common set of skills taught in general education courses which are necessary for success in upper division curricula. There may indeed be a better argument for discreet criteria for admission to specific programs; that is, the qualifications and skills for a student entering an electrical engineering program may be distinctly different from those for a student training to be a professional artist and still different for a student planning to become a teacher of English in the secondary schools.

This leads back full circle to the original question, screening for what?

Certification

A different approach which may have considerable merit is the establishment of a testing program or programs that would certify that a student, upon completion of an associate degree, has met certain criteria or has demonstrated a set of competencies defined by the particular program he has completed. Rather than a beginning of the junior year testing program administered by the state universities, it would become an end of the sophomore year program administered by community colleges and lower division units within the universities. The advantage of such an approach would be that the degree granting institution would assume the responsibility for certifying its own graduates in relation to its own instructional programs. However, unless the competencies were defined in terms of something like basic literacy, a certification that the student could meet established standards of reading and writing skills, the plethora of tests to be developed could well become prohibitive in cost and burdensome to admission officers.

Placement

On our own campus there is growing support for a mid-point testing program which has as its major purpose a guidance function for the placement of students in appropriate courses and ultimately in appropriate curricula. As the first step in the development of such a program, the College of Arts and Sciences, which admits approximately four thousand students each year, has made plans to launch a pilot study this fall. A common requisite to all Arts and Science programs is the ability to write standard, that is conventional, edited English. There is increasing concern on the part of faculty that many students, both native and transfer population, lack this ability. In fact, there seems to be fairly uniform agreement that many students at the University of Florida do not write well. However, there is little systematic empirical data which supports this contention or describes the magnitude of the problem. In an attempt to develop a uniform method of assessing writing skills, two testing programs--the Regents Testing Program, an essay examination used by the State University System of Georgia and the Test of Standard Written English developed by Educational Testing Service for the College Entrance Examination Board--will be used in a two part study to establish the usefulness of these tests for the assessment of our students' writing skills.

There will be no attempt at this time to use one or both of these tests to exclude students. Rather, they will be used to place students in appropriate courses or remedial laboratories if the data indicates such action may be beneficial to the student.

The ultimate goal of this study after a three year period will be t answer the following questions:

(1) Do one or both of the tests parallel writing instruction of the English Department?

(2) Do one or both tests predict success for students in various programs?

(3) Can a cut-off score or level of performance be established below which a student will experience difficulty in perfoming adequately in a specific program?

If affirmative answers are found for these questions, then the evidence may indicate that an effective instrument has been identified which could be then used as a screening device for any upper division academic program which places a high emphasis on writing skills. The major caution would be to use neither of these instruments as a screening device before the three year study is completed.

There are other existing instruments which tap skills and knowledges identified as major prerequisites for specified curricula which could be studied through this approach. However, without a careful study of the predictive ability of such instruments, their value cannot be determined.

Accountability

Yet another purpose for which a mid-point testing program could be used is accountability. One of the grave dangers in designing a screening and/or placement program which may have excellent predictive qualities and thus be highly useful at the upper division levels of the universities is that it will automatically be assumed by some that it can also be a useful instrument for determining the effectiveness of the various community colleges and lower division instructional programs. Those of us who have an understanding of the fallacies in such an assumption and who have seen some of the invalid comparisons which were made from the results of the Florida Twelfth Grade Testing program, can anticipate that a mid-point screening device could become a weapon turned upon the community colleges and lower division programs. Program monitoring and evaluation in terms of student achievement are important activities, vital input to educational decision making. However, if a mid-point testing program is to be put to this use, that purpose should be clearly determined at the onset and the testing programs so designed. The accent must be on the plural, for program evaluation demands measurement of the specific components of the program, not global measures which will be more influenced by the characteristics of the students as they enter the program than by the impact the program has on their learning.

Degree by Examination

Two studies of programs by which credit-examination is awarded have been presented in these proceedings. It does not take a very large intuitive leap to assign yet another purpose to a mid-point testing program, an associate degree by examination. If a testing program is designed to measure the achievement of students who have completed general education and pre-professional curricula then it would not be unreasonable for in-coming students to challenge the tests and be awarded a degree upon the basis of their successful performance. Needless to say, this idea might be extremely atractive to some of our cost conscious political leaders, but I can state with assurance it would meet with even less enthusiasm with my own faculty than the College-Level Examination Program ever did.

Conclusions

I have attempted to share with you some of my thinking concerning one of the issues surrounding the establishment of a mid-point testing program. Basically, it revolves around the purposes such a program or programs would serve. I have not suggested the resolution of the identified issue; indeed it would be presumptuous for me to do so. Rather, I urge the community of institutional researchers to address these issues on their own campuses and begin developing some pilot programs to provide empirical information which can be used for program development purposes.

A well designed program, based on well articulated purposes and strongly supported by faculty can provide useful information for effective decision making. A hastily conceived program used for a multiplicity of purposes for which it was not designed may place us in the position of having grabbed a "tiger by the tail". I firmly believe as institutional researches, we should work toward dealing with this problem. If we don't, someone will do it for us.

THE EFFECTIVENESS OF AN INCOMING
STUDENT ORIENTATION PROGRAM

Presented at
Ninth Annual Florida Statewide
Conference on Institutional Research
Orlando, Florida
June, 1976

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ABSTRACT

This study was undertaken to evaluate an orientation program that purported to reduce the level of underachievement normally associated with first-quarter students and to reduce the attrition rate of new students during the first year of college. The basic issue addressed by this paper is "Can an orientation program be developed which will decrease, if not eliminate, the high attrition rate that occurs during the first year of higher education." This study contrasted attrition rates and achievement levels for students who participated in a special orientation program during the summer of 1974 and a control group who participated in the regular program. The special orientation program provided students the opportunity to participate in several activities designed to improve their decision-making skills and to decrease their level of anxiety. The control group participated in a regular orientation program that was designed to inform students of specific institutional requirements and familiarize them with the university service programs and facilities.

The research findings of this study appear to indicate that the overall achievement level during the first two quarters of college work can be improved and that the attrition rate can be reduced by providing appropriate orientation experiences. Furthermore, the study seems to indicate that the academic capable student is more likely to participate in experiences similar to Mr. Ferrell's orientation program.

Since the findings of this study were based on only two quarters of data with the possibility of other variables such as motivation accounting for the differences in grade point average and attrition rate, further analysis must be completed before difinitive recommendations can be made.

THE EFFECTIVENESS OF AN INCOMING STUDENT ORIENTATION PROGRAM

Introduction

For several centuries institutional personnel have expressed concern over the high attrition rate of students who enter higher educational institutions. A high attrition rate represents a serious problem to both the student and the university. It is a financial burden for the student and requires the utilization of more resources to maintain a specified enrollment level. Attrition also creates an emotional crisis for the student who experiences failure. When students who have the potential to succeed are the victims of attrition, the potential human resources of society are underutilized. Since institutional programs can be developed which will decrease the rate of attrition while maintaining quality standards of academic excellence, these societal losses can be prevented.

Although a considerable amount of research has been completed which indicates the attrition rate is very high during the first year and that attrition is related to the student's level of integration in both the social and academic systems of an institution, a minimal effort has been made to determine what can be done to control this phenomenon. A longitudinal study completed by Trent and Medsker indicates that in all probability the level of persistence can be improved if the level of discontent and insecurity can be reduced (Trent & Medsker, 1968).

The basic issue being addressed in this paper is can an orientation program be developed which will decrease, if not eliminate, the high attrition rate that occurs during the first year of higher education. The purpose of this study was to evaluate an orientation program which purported:

1. to reduce the level of underachievement normally associated with first-quarter students;
2. to reduce the attrition rate of new students during the first year of college.

Overview

A brief review of the literature on attrition revealed some basic concerns associated with the topic. They are as follows:

1. The high attrition rate contributes to the underutilization of valuable human resources as well as creating a financial burden for those who withdraw;
2. The institutional cost associated with the recruitment and admission effort to replace the first year nonpersisters creates a financial burden on the institution.

Huber reported that for students who entered as freshmen, the graduation rate falls between 30-50 percent in public universities. Furthermore, attrition rates have remained approximately constant over the past three decades (Huber, 1971) even though student mix has changed drastically. Most institutional personnel consider a high attrition rate to be a natural phenomenon. However, when the concern is addressed, students are considered to have the shortcomings and are blamed for the problem. The most common reasons cited for high attrition rates are that students have low ability, lack ambition, dislike responsibility, can not read, are poorly motivated, and lack direction (Huber, 1971; Trent & Medsker, 1968).

Several authors cite using student services as a possible solution to the attrition problem. Trent and Medsker reported many of their subjects indicated that the need for direction was essential. Likewise, they indicated the goal of counseling should be to increase self-responsibility and to increase the level of decision-making maturity of students (Trent & Medsker, 1968). Cochran noted that most successful programs demonstrate a concern for what happens to the student beyond the admission stage. One such approach included programs which utilized the process of peer aid in the organization of academic and counseling service programs (Cochran, 1975). Huber contended if one were to determine individual needs of the student at the point of entry one could predict likelihood of self-fulfillment (Huber, 1971). However, this would necessitate that programs and priorities be established by all of the institutions within a state thus allowing for the alignment of student needs and institutional programs.

Regardless of the potential merit of new and innovative programs, the conflicting pressures related to program effectiveness and budget constraints necessitates that programs be evaluated to determine both their usefulness and cost effectiveness.

Special Orientation Program

A special orientation program was developed by Mr. Jimmie Ferrell, Director of Student Organizations, and implemented during the summer of 1974. This program provided students the opportunity to participate in several activities designed to improve their decision-making skills and to decrease their level of anxiety. These activities were as follows:

1. Each student was associated with a student/faculty facilitator team. This activity enabled the student to become oriented to the University in a very personal manner with emphasis on "accent on the individual;"
2. Each student participated in development exercises which created an awareness of the dynamics of interpersonal relationships such as leadership skills, listening communication skills, and decision-making skills;
3. Each student participated in exercises designed to develop specific short and long-range educational goals with emphasis on career planning. This activity was designed to increase the probability of success at the University;
4. Each student participated in an orientation program to familiarize him/her with the student service and academic service programs, including Cooperative Education, Developmental Center, Financial Aid, ROTC, and Library Service;

5. Each student participated in activities which were designed to stimulate both their academic and extracurricular involvement;
6. Each student participated in a personalized academic advisement and registration process in an attempt to decrease the level of apprehension commonly associated with the new entering freshman.

Population

The population for this study included 819 first-time-in-college students who attended Florida Technological University during Fall Quarter, 1974. The population was stratified into two groups. The first group (special group) was composed of those students who applied prior to June 1 and chose to attend the special orientation program which was held during the summer term. The second group (control group) participated in a regular orientation program that was designed to inform students of specific institutional requirements and familiarize them with the University service programs and facilities.

Statistical Method

The statistical techniques utilized included an ANOVA, Covariance analysis and Chi-square analysis. The null hypotheses of no difference between the overall grade point averages for the two populations by Florida Twelfth Grade category were tested with an analysis variance design and followed up with a Covariance analysis such that variability in achievement attributable to differences in admission test scores were eliminated. The null hypotheses of independence were tested with a Chi-square analysis. For this analysis each group was stratified by three Florida Twelfth Grade score categories.

Research Finding

The first-time-in-college population was distributed between the special group and the control group. Table 1 provides a brief demographic profile of the two groups. These data revealed that the average score on each measure was greater for the special group.

TABLE 1

Demographic Profile
By Group

Category	Special Group	Control Group
Total	391.5	376.9
PSY	74.09	53.77
GPA	2.53	2.33
N	389	430

The null hypothesis of no difference between population mean overall grade point averages for the first two quarters was tested with an ANOVA design. Table 2 provides a brief summary of these findings. Based on the results, the null hypothesis of no difference was rejected at the .002 level of significance.

TABLE 2

Summary of "ANOVA" Findings

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
ID	8.063	1	8.063	10.67	.002
Residual	617.326	817	.756		
TOTAL	625.389	818	.765		

These data revealed a definite relationship between a student participating in the special orientation program and their overall grade point average achievement at the University. The 95 percent confidence intervals for the overall grade point average are as follows:

Control Group -	$2.24 < \mu \text{GPA} < 2.42$
Special Orientation Group -	$2.46 < \mu \text{GPA} < 2.61$

These data evidence that the confidence intervals do not overlap and the expected mean GPA difference is .2 of a point on the 4 point scale.

Since the demographic characteristics of the two samples were not similar, a covariant analysis was conducted to eliminate the variability in grade point average attributable to total Florida twelfth grade score. Table 3 provides a summary of the covariant ANOVA findings. Although the total Florida twelfth grade test score was a significant contributor, these data revealed that the special orientation program appeared to have a positive effect on academic achievement. Based on these findings the null hypothesis of no difference was rejected at the .033 level of significance.

Table 3

Summary of "Covariant ANOVA" Findings

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Covariant					
Fla. 12th Grade	32.231	1	32.231	44.58	.001
Main Effects					
ID	3.228	1	3.228	24.524	.033
Explained	35.459	2	17.729	24.524	.001
Residual	589.930	816	.723		
TOTAL	625.389	818	.765		

A Chi-square analysis was used to determine if attrition was dependent on the type of orientation program. Table 4 provides a summary distribution of the number and percentage of students who dropped and continued by group. A contingency table analysis of these data evidenced a computed Chi-square of 25.91. With one degree of freedom, the null hypothesis of independence was rejected at the .001 level of significance. These findings revealed that 10.5

TABLE 4

Number and Percent of Students Who
Dropped or Continued by Group

Attendance Category	Special Group	Control Group	Total
Dropped			
Number	41	105	146
Row Percent	28.1%	71.9%	17.8%
Column Percent	10.5%	24.4%	
Continued			
Number	348	325	673
Row Percent	51.7%	48.3%	82.2%
Column Percent	89.5%	75.6%	
Total			
Number	389	430	819
Percent	47.5%	52.5%	100%

$X^2 = 25.91$ Significance Level = 0.0001

percent of the special orientation group dropped out of college as compared to 24.4 percent of the control group. As in the ANOVA design, steps were taken to determine if the demographic characteristics of the two groups were accountable for the difference in attrition rates. To eliminate the external influence of the Florida twelfth grade score, the groups were stratified into the following subgroups:

Low Subgroup - $\text{FTG} < 350$

Medium Subgroup - $350 \leq \text{FTG} \leq 415$

High Subgroup - $\text{FTG} \geq 416$

A Chi-square analysis was completed for each subgroup. Table 5, Table 6, and Table 7 provide a distribution of the number and percent of students who dropped or continued by subgroup.

TABLE 5

Number and Percent of Students
Who Dropped or Continued
Low Subgroup

Attendance Category	Special Group	Control Group	Total
Dropped			
Number	16	56	72
Row Percent	22.2%	77.8%	26.3%
Column Percent	15.4%	32.9%	
Continued			
Number	88	114	202
Row Percent	43.6%	56.4%	73.7%
Column Percent	84.6%	67.1%	
Total			
Number	104	170	274
Percent	38%	62%	100%

TABLE 6

Number and Percent of Students Who Dropped or Continued Medium Subgroup

Attendance Category	Special Group	Control Group	Total
Dropped			
Number	15	35	50
Row Percent	30.1%	70.0%	18.8%
Column Percent	11.6%	25.5%	
Continued			
Number	114	102	216
Row Percent	52.8%	47.2%	81.2%
Column Percent	88.4%	74.5%	
Total			
Number	129	137	266
Percent	48.5%	51.5%	100%

TABLE 7

Number and Percent of Students Who Dropped or Continued High Subgroup

Attendance Category	Special Group	Control Group	Total
Dropped			
Number	10	14	24
Row Percent	42.7%	58.3%	8.6%
Column Percent	6.4%	11.4%	
Continued			
Number	146	109	255
Row Percent	57.3%	42.7%	91.4%
Column Percent	93.6%	88.6%	
Total			
Number	156	123	279
Percent	55.9%	44.1%	100%

Table 8 presents a summary of the X^2 analysis by subgroup. Based on these findings the null hypotheses of independence were rejected at the .002 and .006 level of significance for the low subgroup and medium subgroup respectively. These data revealed that attrition was dependent on the type of orientation program for the low subgroup and the medium subgroup. Based on these findings it seems apparent that the special orientation program was successful in reducing the overall attrition rate for two of the three subgroups. It appears that only the high subgroup did not benefit from the special orientation program.

TABLE 8

Chi-Square Analysis Summary
Data by Subgroup

Subgroup	N	x^2	df	Significance Level
Low	274	9.38	1	.002
Medium	266	7.45	1	.006
High	279	1.58	1	.21

Summary

These findings appear to indicate that the overall achievement during the first two quarters can be improved and that the attrition rate can be reduced by providing an orientation experience similar to Mr. Ferrell's program. This study provides evidence which seems to indicate that the academically capable student is more likely to participate in experiences similar to Mr. Ferrell's program when they are arranged on a voluntary basis. Accordingly, these findings indicate that the experience of Mr. Ferrell's program was influential in bringing about a positive change in the areas of achievement and attrition. However, it is important to note that one can not assume the objectives of the special orientation program were realized since a formal evaluation was not undertaken to determine if either the student's decision-making skills were enhanced or their level of anxiety was lowered after participating in the program.

Since these findings were based on only two quarters of data with the possibility of other variables such as motivation accounting for the differences in grade point average and attrition rate, further analysis must be completed before definitive recommendations can be made.

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THE COST-INCOME COMPONENT
OF PROGRAM EVALUATION

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Presented at the Florida Invitational
Conference on Institutional Research

Orlando, Florida
June 17-18, 1976

THE COST-INCOME COMPONENT

OF PROGRAM EVALUATION

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A very wise lady from the hill country of southern Indiana has developed a philosophy over the many years of her life that allows her to live happily with her meager lot. As she will tell the restless young who will pause to listen; "Tell me what thee wants, and I will tell thee how to live without it."

The Florida Legislature has been using this philosophy with Florida public post-secondary education for several years. Some programs which post-secondary education wants may be those things we will have to learn to live without. Painful evaluations are necessary to learn what programs and how much.

Although program evaluation is a theoretical component of every educational planning and budgeting cycle, it is not necessarily a realistic or meaningful endeavor during times of reasonable funding. Program decisions too often appear to be made on a changing set of values with little, if any, cost and/or income information.

The value component is, of course, the major component in any program decision. However, values have often been ill-defined. Vague terms such as, "community commitment", "educationally sound," "meets state or national needs", "adds prestige", and "supports other programs" have become values on which programs have been justified. Documentation of values such as those just listed has not always been produced or if it has, the documentation has been as vague as the terminology. Under the present stress of budget restrictions, values need to be defined in more precise terms. Program retention or expansion now very often encroaches upon other programs of the institution in a very real and restrictive manner. Values must be examined not only in the program under consideration but also in any other program affected. Thus, value definition will have to be precisely stated in order to allow for the necessary give and take.

The second component of program evaluation is an examination of the cost to income relationship of the program. This cost to income relationship becomes a value to add to the mix. New questions arise. Is the value gained worth any losses incurred? To what extent can other programs be expected to support a loss producing program? Which programs are to be combined to produce a self supporting unit within the total framework of the college or university? Answers to these and similar questions form a very real part of any program evaluation and of necessity are unique to each institution. This paper will leave these answers to the more daring souls at each institution. The purpose here is to examine some of the methods and problems of conducting cost-income studies.

Cost-income studies as developed by the Management Systems Office of Seminole Community College vary greatly in the amount of detail and depth but are precisely defined. The attention to definition allows the user the options of introducing new elements, changing the elements, adjusting the mix of elements, or requesting greater detail. The studies are not purported to be precise measurements of anything. Rather, they are produced to illustrate, within the carefully defined constraints, the economic health of a program.

Hopefully, the studies serve two functions. First, the studies can act as the indicator of the economic value of a program. This economic value used in conjunction with the other values needed in program evaluation allow for the most realistic appraisal of the present worth of the program. Second, if the studies show the program to be a marginal program or a loss producing program, the constraints used in the study and the elements of the study itself often indicate prescriptive measures for program health. Again, there must be a critical examination of the interaction of economic and educational values. Are the changes required to produce economic health too drastic to allow the program to operate in a meaningful manner? Can two programs be combined in such a way to improve the economic health of both without too great an educational loss in the trade off? What elements in the cost-income mix are amenable to adjustment? How much adjustment is required? What elements not in the study need to be investigated? In the process of this examination, programs can and have changed their character to such a degree that the financial picture is brought into a positive focus.

Before actual cost-income studies begin, there should be an agreement with users as to the time frame of the study, the definitions of the elements of the study, and the general method used in the study. Hopefully, this agreement will lessen, to some degree, the often violent reaction which follows the publication of some studies. At the very least the agreement will provide a plausible beginning for the ensuing discussions.

The time frame is important because data need to be as current as possible. However, the data need to be as accurate as possible. At Seminole most cost-income studies are called for during Term II. This is the time of very difficult personnel and budget decisions. The studies most generally encompass Term I data only. Personnel, payroll, financial and student data are complete and checked to provide a sound base. The use of Term I data can create some problems. The extension of the information to a yearly basis is fraught with hazards and often requires a tentative follow-up of Term II data. Also, Term I is often a high enrollment, high productivity term and can paint a rosey picture which full year operations will not support. However, the use of prior year data or the estimation of full year operations pose too many uncertainties. The limitations imposed by using Term I data do not negate the usefulness of the studies if the users are well aware of the constraints and problems.

Income elements include student income, state support, and any other definable income such as direct support from industry, government or other sources. Student income, unfortunately, is not clearly defined in a multipurpose institution such as Seminole. Credit fees are twelve dollars per student credit hour. Non-credit courses vary from less than a dollar per student semester hour equivalent to well over twelve dollars per student semester hour equivalent. Term I 1975-76 data shows the Seminole Community College average was $8.03 per student semester hour. Agreement must be made on the student income base. Should all programs use the average income or the income unique to students within their area? The utilization of special fees such as lab or music must also be considered.

State income introduces similar problems. The Florida Community College Division begins the process of funding on differential values for each discipline. However, the inevitable low level of funding and an estimated enrollment base coupled with mid-year cuts due to insufficient state funds make it very difficult to establish a meaningful local deferential funding level. A simple solution is to divide the allocated state funds by the estimated total number of student semester hours to produce an average income per student semester hour. Again, any problems caused by this approach must be understood by the user.

Other income presents no problems of definition. The only problem is the one of determining if such income exists and to what extent. If such income is provided on other than a regular basis per defined unit, this fact must become a part of the study. Seminole Community College has one program which was a break even program in 1974-75 due to a heavy influx of industry funds. The program is now a loss program due largely to the removal of those industry funds.

Expenses may be approached from two broad viewpoints. A budget or chart of accounts approach will use direct or instructional cost, direct department overhead, cost of equipment and college-wide overhead. The cost accounting approach utilizes depreciation in place of equipment cost.

In most cases the cost-income study is conducted within a very limited time frame. Also, the study should not be more costly than the possible program savings. For these reasons, an expensive and time consuming total audit is neither practical nor even beneficial. If current year data are used in the study, the problem of extending Term I data to the full year still remains. However, great care should be taken with the instructional cost as this is not only the larger part of cost but also the most amenable to change. In the studies at Seminole Community College, the payroll records of instructors are matched with the individual teaching assignment to eliminate any salary which should properly be assigned to a different discipline or to non-instructional activities. Benefits to personnel are considered to be a part of the direct cost of instruction and the retirement and FICA payments made by the College on behalf of an instructor become a part of total instructional cost. Insurance and other benefits have been classified in the Florida Community College Cost Analysis and College-wide expenses and are treated as such in these studies.

The College uses two separate approaches to determine overhead and presents both in the final report. The user has the options of using either approach, or since the elements of cost are clearly displayed, any mix of elements appropriate to needs may be chosen.

A great debate sure to ensue with any discussion of cost centers around "marginal cost." The author has never been able to produce a working definition of marginal cost. Further, he has never been able to find the threshold at which full and marginal cost go their separate ways. He has, however, been informed by various program managers that almost the total offerings of some instructional components are able to operate on marginal cost. All other cost is being absorbed by some seldom defined other component of instruction.

Cost is displayed in such a way as to allow for recognition of the marginal cost concept. This cost display also provides data using current fund expenditures for Term I. Current fund expenditures are divided into supplies and services, and equipment expenses for the term. A minimal college-wide overhead is also charged. The data used in this configuration will produce a low figure by eliminating departmental administrative and support personnel cost. There is also a certain lack of stability of the data due to the uneven pattern of spending within the supplies and services and equipment budgets throughout the year. If this is known and understood by the user, adjustment can be made if necessary.

The second mode of displaying cost uses the same basic data on instructional cost combined with data from the latest cost analysis. For cost-income conducted during Term II of 1975-76 departmental and college-wide cost data from the 1974-75 cost analysis are used. In the marginal cost method there are no charges for departmental administrative or support personnel. With the cost analysis based cost, both of these costs are included. Unless there has been a drastic reduction in budget amounts for supplies and services, the past data seem to serve well and are more representative of full cost. The college-wide overhead for the past year will probably be low due to the effect of inflation and rapidly raising energy cost. Seminole has been very near the bottom of the scale of community colleges in college-wide overhead per student semester hour and has not had the opportunity to make any appreciable reduction in this spending.

The use of cost data introduces another change that should be noted. Cost analysis uses a five year straight line depreciation rather than equipment cost. If the user requests a substitution of equipment cost for depreciation cost, the cost analysis data are sufficient to allow the interaction.

All cost data included in income and expense items use only the monies of the general current funds of the College. No federal or other non-recurring funds are used. Proposed legislation which would require the College to retain all depreciation of vocational equipment for replacement of that equipment only could require a new look at this component of the cost-income studies. If, indeed, the monies must be held in trust, new income and cost factors will need to be agreed upon.

The study should not confine itself to the essential fiscal data if other data are uncovered in the analysis. The required examination and checking of the enrollment base will often lead to an investigation of the patterns of course offerings or the composition of the student body of the program. Examination of current expenditures may provide hints to in-depth examination of other accounts and in fact, other cost centers. A chat with the purchasing agent, the accountants, the college print shop personnel, and even the telephone operator are often useful. One good source of information are maintenance and custodial personnel. There is often an unusual drain on these services by some programs that should be considered. There is no check list of personnel to see or sources of data. One must simply be alert to any clue and follow through. A suspicious nature may help but care should be taken not to waste time and effort for very little helpful information. Any extended examination should be undertaken only if there is a strong indication that a real cost or cause will follow.

Enrollment patterns of an unusual nature should be noted. These patterns often indicate prescriptive measures for improved financial health. Such things as too many small sections within a set of multiple offerings of one course or an imbalance of full classes to small classes often appear. Examination of course titles can provide information about shifts in the thrust of the program. Programs may move from being largely a service to the entire college to a strong disciplinary approach. The disciplinary approach may create a low average class size and thus increase the cost while reducing income. In some programs course titles or descriptions indicate further examination of the types of students within the program. In one case, course descriptions led to the discovery that more than half of the student body of one program came from federally supported programs. This data had implications for staffing and long range commitment as the funding was tentative. Any unusual student data would be beneficial to program evaluators.

Whenever a program is only a part of a cost center, it would be worthwhile to examine the possibilities of the program using more than its proportionate share of the resources of that center. Are special support personnel assigned to the program? Would a check of some of the purchases for the cost center be appropriate? What does the purchasing agent say? Are there other programs or cost centers from which the program may draw? These are some of the concerns that need resolution.

Unusual findings become a part of the "notes" of the reports. These findings should be presented as factually and simply as possible so as not to imply any particular value and thus give bias to the main body of the report. As with the report itself, the "notes" should only serve as information to be imbeded into other information for use in program retention, modification, or dissolution decisions.

Appendix A gives an example of a cost study of a hypothetical program. As is often the case, the study provides as many questions as answers. Using cost approach "A" the program will make its way. However, can it be justified as a marginal program of this degree? A look at equipment cost to date indicates a cure and a question. The cure would hold these expenditures at their present level to overcome some of the loss displayed in option "B". The question is: How low can these expenditures be and what is now encumbered? Other information suggests possible further adjustment. Could fees be raised to improve income? An increase to $12.00 in fees would produce an additional $15,934.05 income. Will the present full-time staffing be a problem if the CETA program is withdrawn? If the student body of the program is changing to "support students", is the general character of the program also changing? Would a detailed study of the instructional cost which includes full-time, part-time, and overload information be helpful? As you can see, the information can be prescriptive, valuable, and madding. The program evaluators must now decide the needs for more information and the sources of that information. The evaluators must also decide the action or inaction which will follow. Program managers will often provide the necessary changes when they have the opportunity to examine and understand the implications of the report.

The relatively large demand for reports and the questionable value of producing some requested reports has led to the development of a formula for quick, if not precise, data. The formula (Appendix B) has the advantage of producing indicators of problem areas without involved detailed examination. Basically, the formula uses the full cost approach of option "B" of the more detailed cost study. The choice and number of variables will allow for as much precision as does the full study. However, the formula has been found to have the greatest use as a broad indicator of program financial health in both a historical and predictive setting.

The formula simply states, in algebraic terms, that the income must be greater than, or at least equal to, the expenses. The formula has the advantage of providing certain guidelines for what would be necessary to make a program self-sufficient. As with any algebraic formula, the formula may be solved for any variable. However, general usage has shown that the student semester hour and the instructional cost have the greatest practical usage.

Using the data from the previous example (Appendix C, Part I) the formula yields $S \geq 5,919$ and $P \leq 89,166$. In other words, if cost were held constant, production would have to be increased by 545 student semester hours in order to break even. If production is held even, then instructional or other costs would have to be reduced by $9,211.

The formula can be adapted to a variety of usages. Given the estimated salary expenditure for one section, the formula would produce a minimum economical class size. Assuming the income and expense data of the example and a salary of $1,200. the formula yields a minimum of 83 student semester hours (Appendix C, Part II). If the course were a 3 student semester hour course, then 28 students becomes the minimum class size.

The formula usage is limited only by the availability of data and the imagination and needs of the user.

The cost-income study and the program evaluation it supports, can be a time consuming and painful operation. The financial exigencies and the program modifications or eliminations which will follow are not all bad. Education too often operates on momentum alone, carrying with it outdated and questionable programs. There is a need to look at what we do and question it. The resources and energies spent in some programs could be much more productive if placed elsewhere.

As my friend of the introduction might say: "Sometimes we got to do away with some of the things we got, so we can appreciate the things we gotta have".

Appendix A

HYPOTHETICAL PROGRAM

COST - INCOME STUDY

TERM I 1975-76

INCOME:	SSH	5,365 X 9.03	(1)	=	48,445.95
	FTE	178.8 X 842.00		=	150,549.60
					198,995.55

EXPENSES:	A	B	
Instructional	98,376.75	Instructional	98,376.75
600 + 705	26,975.00	Division Overhead	40,237.50
710	5,125.00	College Overhead	69,637.70
College-wide	53,650.00		
	184,126.75		208,251.95

A	B
Based on proportional part of supplies and services (600+705) and equipment (710) Cost for 1975-76. $10 used as College-wide Overhead. No Departmental Administrative or Support Cost.	Based on 1974-75 cost analysis cost on non-federal funds. Program overhead $7.50/SSH. College-wide $12.98/SSH.

NOTE: (1) Term I 1975-76 average income/SSH

(2) 2,310 SSH created by 35 sections of CETA classes with average class size of 22. Average class size for remaining sections is 18.

Appendix B

COST - INCOME FORMULA

Variable Listing

S = Student semester hours (ssh)

F = Student fee per ssh

R = State funding per ssh

D = Division Overhead cost per ssh

C = College-wide overhead cost per ssh

P = Instructional personnel cost in dollars (Include Retirement and FICA)

Optional Variables

W = Fee waiver cost in dollars (Use when waivers are responsibility of program)

I = Special income in dollars (Lab or other special fees charged for program)

E = Special expenses in dollars (Not covered in C)

Formula with two alternate solutions.

INCOME EXPENSES

$$\left[(F \cdot S) + (R \cdot S) + I\right] - \left[(D \cdot S) + (C \cdot S) + P + E + W\right] \geq 0$$

$$F \cdot S + R \cdot S - D \cdot S - C \cdot S - P + \overbrace{I - E - W}^{\text{optional}} \geq 0$$

$$(F + R - D - C)\, S - P + I - E - W \geq 0$$

Let $X = F + R - D - C$ ssh factor

Solve for S

$S \geq \dfrac{P - I + E + W}{X}$ or without options $S \geq \dfrac{P}{X}$

Solve for P

$P \leq X \cdot S + I - E - W$ or without options $P \leq X \cdot S$

Appendix C

HYPOTHETICAL PROGRAM FORMULA COST - INCOME STUDY

PART I

$S = 5,365$

$F = 9.03$

$R = 842.00 \div 30 = 28.07$

$D = 7.50$

$C = 12.98$

$I = 98,376.75$

$X = 9.03 + 28.07 - 7.50 - 12.98. = 16.62$

$S \geq \frac{P}{X} = \frac{98,376.75}{16.62} = 5919$

$P \leq X \cdot S = (16.62)\ 5,365 = 89,166$

CLASS SIZE STUDY

PART II

Salary 1,200

Benefits 15%

Total Salary 1,380

$S \geq \frac{1,380}{16.62} = 83$ ssh

$83 \div 3 = 28$ students

INSTRUCTIONAL EVALUATION SYSTEM

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ABSTRACT

This paper analyzes the results of an instructional effectiveness instrument completed by students on nine instructors in the Polk Community College mathematics department. The findings show that the evaluation used did not pinpoint an instructor's instructional deficiencies and/or virtues, one of the two purposes of the evaluation. To analyze the second purpose of the evaluation, a Duncan Range test was used and it was found that the evaluation could not be used to determine a clear cut order of merit among the instructors being evaluated.

INSTRUCTIONAL EVALUATION SYSTEM

Introduction and Background

In the fall of 1971 the Vice President of Polk Community College instituted a new instructional evaluation system. The purposes of this evaluation system were to help instructors improve their effectiveness and to establish an order of merit among instructors. The order of merit was a result of a Board of Trustees mandate for merit pay.

The evaluation system has two components, organizational effectiveness and instructional effectiveness. Each component has three parts, ratings or questionnaires. Organizational effectiveness ratings are completed by the instructor's dean, diyision chairman and department head. The three instructional effectiveness ratings are completed by the instructor's division chairman, his department head, and his students.

Many questions have been asked and many criticisms voiced about the system. How do the various sections of the evaluation correlate with each other? how do I know what my scores mean? how do I score in relation to others? do the system really do what it is suppose to do? are the students evaluating the course or the instructor? are a few of the questions asked.

Purpose of Study

The purposes of the study are:

1. To determine if the instructional effectiveness evaluation by students, pinpoints an instructor's instructional deficiencies and/or virtues.
2. To determine if there is a clear cut order of merit in total scores on the instructional effectiveness questionnaire completed by students.

The data for this study is from the instructional effectiveness evaluation completed by students for the instructors in the mathematics department in a fall term.

Analysis for Purpose One

The instructional effectiveness evaluation completed by students is divided into two parts. The first five questions are components of teaching (as defined in this evaluation). A copy of the evaluation form is attached. To determine if the evaluation could pinpoint instructors' weaknesses, a one-way analysis of variance was run on the first five questions for each instructor (see table one). In eight of the nine instructors in the department there was not a significant difference in mean responses for the first five questions. For instructor number seven, an F of 8.44 was significant at the .01 level.

(Table 1: Mean score by instructor for questions A, B, C, D, and E)

	INSTRUCTORS								
	1	2	3	4	5	6	7	8	9
A	5.32	5.13	5.30	5.53	5.15	5.09	4.42	4.14	4.90
B	5.84	5.10	5.47	5.42	5.21	5.33	3.62	3.97	5.07
C	5.61	5.26	5.71	5.51	5.29	5.64	4.80	4.50	5.25
D	5.84	5.13	5.69	5.67	4.88	5.43	5.07	4.32	4.97
E	5.52	5.01	5.20	5.44	4.89	5.04	4.64	3.86	4.74
	0.71	0.33	1.74	0.53	1.25	0.67	8.44*	0.77	1.03

F Statistic *Significant at .01 level

Since there was not a significant difference in the response in eight of the nine instructors, the first five questions are not adequately pinpointing virtues or deficiencies of instructors. In fact, the five questions as stated might be condensed into one question. Also, the question is raised; is there really no significant difference among these components of teaching or is the nature of the subject matter causing this result?

When the F test was run for each instructor on the last ten questions, there was a significant difference at the .01 level on the scores for two-thirds of the instructors in the department (six instructors). The F's which were significantly different are indicated in table two. The Duncan Range Test was then applied to the six cases. The questions were sorted by mean score in ascending order and Duncan's lines were drawn under the non-significant groups of questions. Table three gives these results.

(Table 2: Mean score by instructor for questions F - O)

	INSTRUCTORS								
	1	2	3	4	5	6	7	8	9
F	4.07	3.70	3.67	3.80	3.46	3.91	3.00	2.92	3.18
G	4.18	3.75	4.10	4.09	3.90	4.24	3.49	3.47	3.71
H	4.03	3.91	4.24	4.16	3.89	4.09	2.88	3.00	3.43
I	4.23	3.83	4.40	4.01	4.23	4.39	3.91	3.74	4.28
J	4.19	3.56	4.39	4.11	3.82	4.09	3.33	3.21	3.75
K	3.68	3.68	3.95	3.92	3.63	3.54	3.38	2.89	3.38
L	3.45	3.68	3.73	3.94	3.33	3.40	3.68	2.83	3.05
M	3.53	3.60	3.36	3.60	3.28	3.56	2.68	2.65	2.84
N	4.08	3.77	3.85	3.92	3.81	3.82	3.36	3.50	3.61
O	4.34	3.96	4.05	4.04	4.09	4.05	3.64	3.61	3.41
	1.99	1.44	6.35*	3.02*	6.86*	1.30*	8.62	3.11*	9.80*

F Statistic *significant at .01 level

(Table 3: Questions F - O in ascending order of mean score with Duncan's lines for non-significant ranges.)

```
Instructor:      3                     4
Question:        M F L N K O G H J I   M F K N L I O G J H
Duncan's lines:  _____                 ___
                   _________             _______________
                     _________             _______________
                           _________

Instructor:      5                     7
Question:        M L F K N J H G O I   M H F J N K G O L I
Duncan's lines:  _______               _____
                     _______               _______
                       _________             ___________
                             _______                 _____

Instructor:      8                     9
Question:        M L K F H J G N O I   M L F K O H N G J I
Duncan's lines:  ___________           _____
                   ___________           _________
                       ___________           ___________
                           _________                     _
```

In table three it should be noted that questions M and F are in the losest non-significant range for all of the six instructors and that question G, N, and O are also in a non-significant range for all of the instructors. This raises the question as to whether all six instructors have these same characteristics of if this result is characteristic of the subject matter. Since question I is the top question in five of six cases, can it adequately distinguish between instructors?

Analysis for Purpose Two

A total score on the instructional effectiveness questionnaire completed by students was determined by adding the mean scores for the first five questions and the adjusted mean scores for the last ten questions. The adjusted mean score was used since the range from high to low response is different for the two sets of questions. Table four gives the total score for each of the nine instructors in the mathematics department. The scores are arranged by instructor in ascending order. Although total scores differ significantly among instructors, a Duncan Range Test reveals that six instructors or two-thirds of the department, constitute a non-significant group. In table four, Duncan's lines are indicated below the non-significant groups.

(Table 4: Instructors' scores in ascending order with Duncan's lines for non-significant ranges.)

Instructor:	8	7	9	2	5	6	4	3	1
Score:	52.20	56.00	59.90	62.50	62.90	66.20	67.10	67.70	68.50
Duncan's lines:	———	———							
		———	———						
			———	———	———				
				———	———	———	———	———	———

The instructors might be ranked in order of score, but this evaluation instrument can not be used to establish a clear cut order of merit since there was not a significant difference between the six top scores of nine instructors' scores. Also note that there was not a significant difference between instructor nine and instructors two and five of the top six instructors.

If merit pay is to be given on the basis of this instrument (or if this instrument is a part of merit pay consideration), then who should receive it? If it is the top six instructors then what about instructor nine? He is not significantly different from instructors two and five. Also, as a result of these non-significant differences the question is raised, do these instructors possess similar traits or are students' responses due more to the nature of the subject matter rather than to the peculiar traits of an instructor?

When the individual scores for instructors by course were examined, (see table five) it was interesting to note that instructor nine has the next to highest score in MTS 101 but the lowest score in MTS 111, while instructor five had the lowest score in MTS 101 and highest score in MTS 111, but that both scored high and approximately the same in calculus (MTS 252, 253). When the F statistic was computed for instructors 5 and 9, it was found to be significant at the .01 level. In fact, in five of the seven instructors teaching more than one course there was a significant difference (.05) between the courses taught. This indicates that the course assignment makes a difference in an instructors evaluation, i.e., the order of merit can be effected by the peculiarities of the course. It is also noted that three of the four scores in the seventy's occur in higher level courses, fortran, 225, calculus I, 252, and calculus II, 253.

(Table 5: Instructos' scores by course)

	COURSE											
Instructor	100	101	102	105	111	112	113	145	225	252	253	265
1	68.5											
2		62.5	62.2				62.5					
3	68.5	61.0		75.2								
4		66.6							73.4			66.4
5		57.9			65.8					70.2		
6	66.2											
7					57.0	60.0						46.9
8					62.6			48.1				
9		64.4			52.3					70.9		

Conclusions and Recommendations

This study indicates that the instructional effectiveness form completed by students does not pinpoint an instructor's deficiencies and/or virutes, and that there is not a clear cut order of merit in the scores of instructors. In fact, there are indications that students may be evaluating the course as much as they are evaluating the instructor.

USE NO. 2 PENCIL ONLY

Make your mark as long as the pair of lines, and completely fill the area between the pair of lines. If you change your mind, erase your first mark COMPLETELY.

POLK COMMUNITY COLLEGE
INSTRUCTIONAL EFFECTIVENESS
(FOR STUDENTS)

FORM I2

SECTION NUMBER

☐	0	1	2	3	4	5	6	7	8	9
☐	0	1	2	3	4	5	6	7	8	9
☐	0	1	2	3	4	5	6	7	8	9
☐	0	1	2	3	4	5	6	7	8	9

☐	0	1	2	3	4	DEPT.	5	6	7	8	9
☐	0	1	2	3	4		5	6	7	8	9
☐	0	1	2	3	4	INSTRUCTOR	5	6	7	8	9
☐	0	1	2	3	4		5	6	7	8	9

THE STATEMENTS BELOW REPRESENT COMPONENTS OF TEACHING. STUDY EACH ONE THEN MARK NUMBER WHICH MOST APPLIES. RESERVE THE HIGHEST SCORES FOR UNUSUALLY EFFECTIVE PERFORMANCE.

		LOW SCORE			PCC NORM			HIGH SCORE
A.	Has command of the subject, presents material in an analytic way, contrasts points of view, discusses current developments, and relates topics to other areas of knowledge.	1	2	3	4	5	6	7
B.	Makes himself clear, states objectives, summarizes major points, presents material in an organized manner, and provides emphasis.	1	2	3	4	5	6	7
C.	Is sensitive to the response of the class, encourages student participation, and welcomes questions and discussion.	1	2	3	4	5	6	7
D.	Is available to and friendly toward students, is interested in students as individuals, is himself respected as a person and is valued for advice not directly related to the course.	1	2	3	4	5	6	7
E.	Enjoys teaching, is enthusiastic about his subject, makes the course exciting, and has self-confidence.	1	2	3	4	5	6	7

		LOW SCORE		PCC NORM		HIGH SCORE	DOES NOT APPLY OR DON'T KNOW
F.	Has increased my appreciation for the subject.	1	2	3	4	5	☐
G.	Keeps well informed about the progress of the class.	1	2	3	4	5	☐
H.	Anticipates problems and makes difficult topics easy to understand.	1	2	3	4	5	☐
I.	Speaks clearly.	1	2	3	4	5	☐
J.	Quickly grasps what a student is asking or telling him.	1	2	3	4	5	☐
K.	Presents the aesthetic and emotional values of the subject.	1	2	3	4	5	☐
L.	Relates class topics to students' lives and experience.	1	2	3	4	5	☐
M.	Gives interesting and stimulating assignments.	1	2	3	4	5	☐
N.	Gives examinations that require creative, original thinking.	1	2	3	4	5	☐
O.	Gives examinations that have instructional value.	1	2	3	4	5	☐

ITEMS BELOW MAY BE USED UNDER CERTAIN CIRCUMSTANCES. DO NOT MARK UNLESS INSTRUCTED TO DO SO. IF YOU HAVE ANY GENERAL COMMENTS TO MAKE ON INSTRUCTOR, WRITE THEM ON REVERSE SIDE.

P.	1	2	3	4	5	6	7
Q.	1	2	3	4	5	6	7
R.	1	2	3	4	5	6	7
S.	1	2	3	4	5	6	7
T.	1	2	3	4	5	6	7
U.	1	2	3	4	5	6	7

V.	1	2	3	4	5	6	7
W.	1	2	3	4	5	6	7
X.	1	2	3	4	5	6	7
Y.	1	2	3	4	5	6	7
Z. 177	1	2	3	4	5	6	7
ZZ.	1	2	3	4	5	6	7

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FACULTY SALARY INCREASES AND EVALUATION OF SELECTED PERFORMANCE VARIABLES

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Faculty Salary Increases
and Evaluation of Selected Performance Variables

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ABSTRACT

The study was based on a university of about 800 faculty offering baccalaureate, Masters, and doctorate programs. The purpose was to determine the relationships between recommended salary increases and evaluation of performance. Salary increase proposals were submitted for faculty by department chairpersons. Among other items of information, the proposals contained three categories of data: (1) recommended salary increases for teaching, research, and service, (2) workload assignment distributed by percentages, and (3) chairperson's scale evaluation of performance.

Correlation analysis was applied to the variables for faculty in the discipline categories of Business, Education, Engineering, Fine Arts, Humanities, Natural Sciences, and Social Sciences. Correlations between merit salary increases for teaching and evaluation of teaching and evaluation of overall quality were about the same -- moderate (positive). Correlations between salary increases for activities other than teaching and evaluations of those activities differed somewhat from teaching. Merit increase for research correlated (positively) with evaluation of research to a considerably higher degree than was the case for teaching. In general there was higher correlation between the different variables with respect to evaluation than between salary increases and evaluations of the merit increase categories. Conclusion: The Correlations were weak enough to cast doubt on the value of chairpersons' evaluations in granting salary increases.

****

FACULTY SALARY INCREASES AND EVALUATION SELECTED PERFORMANCE VARIABLES

Introduction

There has been increased debate in recent years about the pay of college faculty members. No doubt the rapid growth of collective bargaining in education has served to agitate the issue.

Teaching, of course, is the primary task of college faculty. However, there are two other important areas of activity in which faculty engage: research/creative activity and service (public and institutional). These three major traditional areas of college faculty activity are operative to some degree in all higher education, though with varying degrees of emphasis (and reward) among universities, four-year college and community colleges.

An exploratory study of the faculty salary increases proposed by college chairpersons for the year 1972-73 was conducted at the University of South Florida. The year 1972-73 was selected because that was the first year in which salary increase proposals were based on formal uniform evaluation procedures. Numerous descriptive statistics and several measures of relationship were applied to the data. A major matter of interest was the extent to which recommended salary increases were reflections of performance evaluations made by chairpersons. Were large merit increases for teaching matched by high evaluations of teaching effectiveness? Did a given evaluation score for research earn more increase than the same score for teaching? Were high evaluations for service recognized by corresponding increases? Did increased assignment in an area tend to inflate the evaluation score of that area? The purpose of the study was to answer these and similar types of questions, search for improved approaches to evaluation and reward, and establish a base for further research.

Procedures

This discussion will emphasize correlational analyses involving evaluation ratings and salary increases, especially in the teaching activity area. Workload assignment will be considered only as necessary for perspective.[1]

A salary increase proposal form was submitted for faculty members by chairpersons to deans thence to the office of the Vice President for Academic Affairs. The forms included data (in addition to numerous other items) as follows:

1. Recommended merit increase amounts for (a) teaching, (b) research and creative activity, and (c) service (professional, university, public).
2. Chairperson's evaluation (5 point scale: 1-lowest to 5-highest) of (a) teaching effectiveness, (b) research and creative activity, (c) service, (d) advising, and (e) overall quality.
3. Workload assignment in percentages-of-total-workload for the previous year for (a) teaching (graduate; undergraduate), (b) research and creative activity, (c) service, and (d) advising.

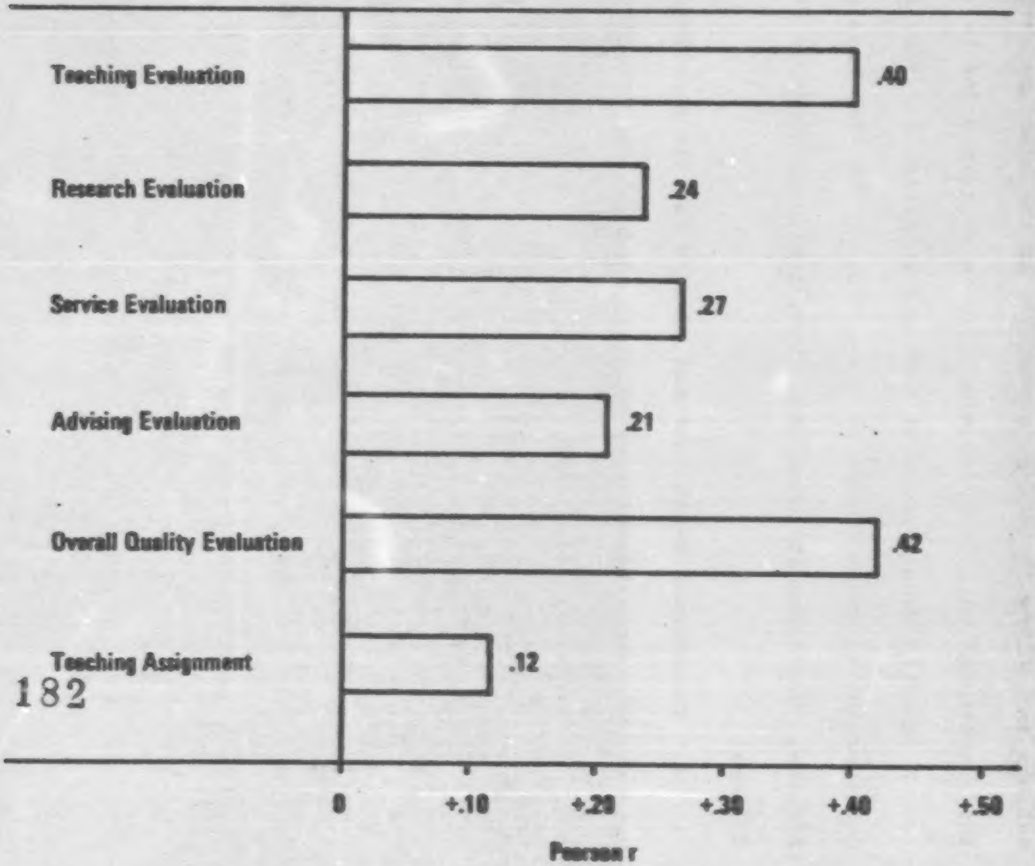
Twelve-month faculty, part-time faculty, faculty who had submitted resignations, and ranks other than professor, associate professor, assistant professor, instructor, and lecturer were excluded. The remainder, 635 9-month faculty, were the subjects of the study.

Findings

Figure 1 displays the Pearson r correlations of variables discussed in this paper.

Figure 1

CORRELATION BETWEEN TEACHING INCREASE AND SELECTED VARIABLES



Correlation between salary increase for teaching and evaluation of teaching performance is present but only moderate, + .40. It is interesting to note that the correlation between teaching increase and overall evaluation is higher, though only slightly so, + .42. There is a noticeable drop from these levels between teaching increase and other variables -- to + .27 and + .24 for service and research evaluations to virtually no association with the assignment variables. The higher correlation between teaching increase and teaching evaluation is expected, or certainly hoped for. The similar higher level of correlation with overall quality suggests that the raters tended to associate overall quality with teaching performance.

It is interesting to compare research and service relationships in light of the teaching data in Figure 1. The correlation between increase for research and evaluation of research performance was moderate, + .49. The correlations between research increase and other variables were low, with one exception. Correlations between research increase and teaching and service evaluations were both - .03, indicating virtually no association. Overall quality evaluation was a different matter. While considerably less than the teaching increase - quality correlation, it was present to a slight degree -- + .23. Noteworthy was the correlation between research increase and research assignment, + .53, which is higher than the correlation between research increase and research evaluation. This suggests the possibility that in research the chairpersons tended to recommend increases based on assignment rather than performance evaluation.

Increase for service and evaluation of service were moderately correlated, + .40. Correlations between service increase and other evaluation variables were + .15 for evaluation of research and + .30 for evaluation of overall quality. This places service about halfway between teaching and research (+ .42 and + .23 respectively] so far as correlation coefficients between those increases and overall quality evaluations are concerned. It is apparent that overall quality was more closely associated with teaching than with research and service so far as salary increases are concerned. The correlations between service increase and the assignment variables were - .12 for teaching assignment and + .34 for service assignment. The fairly close correlations between service increase and service evaluation and assignment (+ .40 and + .34) suggest that the chairpersons were confounding evaluation and assignment ratings when recommending salary increases for service.

It should be noted that evaluations were scaled ordinal data (1, 2, 4, 5, NA-not applicable) while increase and assignment were, for all practical purposes, continuous data of wide range. This circumstance is known to affect some statistics, leading to misinterpretation. However, Spearman's rank-order correlation led essentially to the same results as the Pearson r.[2]

Additional Considerations

Table 1 contains frequency data of association with respect to salary increase and evaluation rating for teaching.

Table 1

FREQUENCY OF SALARY INCREASE BY INCREMENT INTERVAL AND PERFORMANCE EVALUATION: TEACHING

Incr. $ / Eval.	0 - 199	200-399	400-599	600-799	800-999	1,000-1,199	1,200-1,399	1,400-1,599	1,600-1,799	N	%
5	16	57	57	30	4	3		1		168	28.6
4	27	109	79	12	1	2				230	39.1
3	42	79	28	3						152	25.9
2	19	13	2							34	5.8
1	3	1								4	0.7
N	107	259	166	45	5	5	0	1	0	588	
%	18.2	44.0	28.2	7.7	0.9	0.9	0	0.2	0		100.0

The evaluation score, "not applicable" is excluded from the data and computations. The data in Table 1 permits additional analyses of association. It provides added perspective to the Pearson r correlations mentioned previously. The difference between the 635 faculty in the study and the N values in Table 1 is due to the requirement of matched pairs. The latter excludes those who received a "not applicable" evaluation score, even if an increase was proposed.

There were 65 faculty who received no increase for teaching activity. Of these, 24, or 37%, were evaluated as above average (evaluation scores 4 and 5). By way of comparison with the data of Table 1, 17% of those who received no increase for research were evaluated as above average in research. The corresponding figure for service is 31%.

The above average evaluation matched by zero increase cases are not easy to explain. This would seem particularly true in view of the fact that the highest percentage of no-increase cases matched by above-average evaluation occurred in teaching rather than research and service. Could it be that high evaluations were used as a substitute for salary increases? If so, why did it occur more frequently in teaching than the other two major categories? Was it because chairpersons were inexperienced in relating formal evaluation data to salary increases? The answers to these questions are not suggested by the data of the study.

The pattern of "piling up" of frequencies in Table 1 helps explain the general lack of high correlations between activity category and evaluation. The associations appear to tend toward curvilinear relationship rather than the linear relation measured by Pearson r. The small number of evaluation values compared to the range of salary increase introduces problems with respect to parametric statistical procedures. Distribution-free statistics would seem to be a promising area of exploration for association patterns experienced with the variables such as those in this study.

Summary and Recommendations

An exploratory study of salary increase proposals for 635 full time nine-month faculty was conducted at the University of South Florida. The study was based on data contained in salary increase proposals which included (1) recommended merit increase amounts for teaching, research, and service; (2) chairperson's evaluation of teaching effectiveness, research, service, and overall quality; (3) percentage workload assignment in teaching, research, and service.

Correlational analysis was applied to the two factors evaluation and salary increase in three categories of activity -- teaching, research, and service. The correlations summarized here are Pearson r. Positive moderate correlation (+ .40) was found between teaching increase and teaching evaluation and between teaching increase and overall quality evaluation (+ .42). Slightly higher positive correlation was found between research increase and research evaluation (+ .49). There was higher correlation between research increase and research assignment (+ .53) than between increase and evaluation (+ .49). The correlation between service increase and service evaluation was moderate (+ .40), and between service increase and overall quality evaluation the figure was + .30. In general, correlations were present and positive, but only to moderate degree.

A two-way contingency table of evaluation scores and salary increases intervals suggested that the relationship between these two variables was curvilinear rather than rectilinear. This indicates the need to explore other measures of relationship between evaluation and salary increases if such measures are to have value for equitable decision-making.

It is recommended that further research (including non-parametric and curvilinear techniques) be conducted in the area of faculty performance evaluation methods as related to faculty accountability and reward systems. Particular attention should be given to evaluation methods which involve scaling and weights. Provision should be made for evaluation scales or devices on which equivalencies can be established among various programs or discipline areas. In addition a second dimension-weighting-should be provided for the different categories and sub-categories of professional activity, such as teaching, research, service, advising, professional development and renewal, and the like. This is needed so that faculty from different instructional fields or organizational units can be compared on a standardized basis while maintaining different emphasis among the several categories. In-service training should be provided for chairpersons and deans where salary recommendations are to be related to formalized ratings of performance.

This discussion has concentrated on monetary reward in the form of salary increases. Other types of reward, however, are involved. These include promotion, retention, tenure, type of assignment, and the like. Opportunities for equitable professional advancement and development and their corollary - productive activity - depend on reliable and valid systems of evaluation and reward. We must develop and continuously evaluate such systems.

Footnotes

[1] Extensive exploratory statistical analyses of other data from the increase proposal forms, including workload assignment variables, were conducted. These include measures of central tendency and variability, analysis of variance, association measures such as Chi Square, Phi, Contingency Coefficient, Kendall's tau, Gamma, Cramer's V, Somer;s D, Spearman Rho, and frequency distributions. Those interested in further details should contact the author of this paper.

[2] Spearman Rho coefficients were as follows: teaching -- increase/evaluation + .39, increase/overall quality + .41; research -- increase/evaluation + .60, increase/overall quality + .29; service -- increase/evaluation + .46, increase/overall quality + .32. The Spearman correlation efficiency is about 91% when compared to Pearson r.

The Role of Institutional Research in Instructional Development: The Emergence of a New Model at the University of Florida

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Paper presented at the Ninth Annual Florida Invitational Conference on Institutional Research, Orlando, Florida, June 17-18, 1976.

Abstract

A case is made for the involvement of the institutional researcher in instructional, faculty, and/or organization development programs in higher education, particularly in the areas of needs assessment and program evaluation. The authors describe a research study that was designed to assess the commitment of faculty and department chairmen at the University of Florida to the utilization of educational technology. The study is an illustration as to how institutional research can play a vital role in instructional development programs.

The Role of Institutional Research in Instructional Development: The Emergence of a New Model at the University of Florida

In the last 5 years we have seen the emergence of a new interest in staff or professional development in America's higher education community. Numerous models for staff development (SD) in universities and community colleges are being proposed (Gaff, 1975; Bergquist and Phillips, 1975; Hammons, 1975; Richardson, 1975). Gaff in his book Toward Faculty Renewal identified three different staff development approaches: faculty development, instructional development, and organizational development (1975, p. 9). The position taken in this paper is that there is a role for institutional researchers in this new movement, particularly in the area of the identification of staff development needs in a college or university. A research study conducted by the Office of Instructional Resources at the University of Florida in the Fall of 1975 will be used to support this position.

Two major areas of greatest need in present staff development programs throughout our country are for: (1) effective needs assessment procedures and (2) effective evaluation programs. Institutional research offices and officers could provide valuable assistance in both of these areas. In the area of evaluation, the institutional research office could assist the Director of Staff Development in collecting data from students to determine whether or not particular instructional improvement projects make any difference in terms of student learning. This is but one example of a type of evaluation assistance that could be offered by Offices of Institutional Research.

But let us turn to the area of needs assessment. Gaff found in his questionnaire survey of 54 directors of college and university teaching improvement or staff development centers that

> Twenty-seven directors said they have 'conducted a systematic survey or other analysis of faculty interests and need in regard to improving their teaching'; on the other hand, twenty-eight said they had not done that. An examination of the actual procedures used revealed that with few exceptions, the kind of analysis most often used has been a short general questionnaire to determine faculty interest in possible center programs. Although this procedure may be quite useful, it does not necessarily reveal what faculty need to learn (Gaff, 1975, p. 127).

It would appear from this research that many faculty development centers are not conducting careful needs assessments in staff development.

Let us now describe what the Office of Instructional Resources has done this past year in the way of a formal instructional "needs analysis" at the University of Florida. We think our study illustrates the importance of institutional research in the whole instructional development process and provides a possible model for staff needs assessment that other institutions of higher learning may want to adopt.

Nature Of The Study

The purpose of this study was to assess the commitment of faculty and departmental chairmen of the University of Florida to the utilization of educational technology.[1] Commitment was measured in terms of attitudes toward educational technology and knowledge of instructional programs. Specific questions which were asked in the research were:

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[1] This study was made possible by a grant to the University of Florida by the Alfred Sloan Foundation.

(1) What are the attitudes toward educational technology of the faculty and department chairmen?

(2) What are the instructional problems and needs of the university identified by faculty and department chairmen?

(3) What are the existing instructional resources of the university identified and utilized by faculty and departmental chairmen?

(4) How can a measure of openness or willingness to change on the part of faculty and department chairmen be determined?

Procedures

An interview schedule and an attitude scale were designed and administered to selected chairmen. Also an open-ended questionnaire and the same attitude scale were administered to faculty. The data gathered from these instruments were then coded and analyzed.

Population

A listing of 123 departments, names of department chairmen, number of faculty within the departments and number of student credit hours generated by that department was obtained from the Office of Academic Affairs. Non-teaching departments and departments with less than seven faculty members were deleted. A total of 80 departments became the population from which data were obtained.

Instrumentation

Three instruments were developed for the study and were designed to meet the following objectives:

(1) To identify the instructional problems and specific needs of departments as perceived by faculty and department chairmen.

(2) To identify present, planned, and desired solutions to problems perceived by department chairmen.

(3) To catalog the human and non-human resources available to departments as perceived by faculty and department chairmen.

(4) To assess attitudes toward educational technology as a measure of openness or willingness to change.[1]

Interview Schedule for Department Chairmen. An interview schedule was developed by writing items relating to objectives. Drafting the schedule required four revisions before completing the final instrument. Each of the major drafts was field tested by each of the study's interviewers.

Faculty Questionnaire. The faculty questionnaire was a one page subset of the items found on the interview schedule. Faculty were asked to list important human and non-human resources, to nominate colleagues who they considered to be innovative in instruction, and to list their instructional problems and needs. The only demographic information requested was rank and years in the department.

Attitude Scale. Twenty-four items were developed from the objectives and goals of the project to assess a faculty or chairman's attitudes toward the utilization of educational technology. Educational technology was defined to include not only the use of instructional materials and/or electronic equipment, but also the systematic design of instruction. The rationale for each item was that it was to elicit an attitude or feeling, and not be a statement of fact.

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[1] Copies of these three instruments are available from the Office of Instructional Resources, University of Florida, 450 Library East, Gainesville, Fla. 32611.

A Likert format was followed where each item was a clear, concise statement, and the 24 items, 5 negative and 19 positive were randomly distributed throughout the scale. The responses were scores 1 to 5. A very favorable attitude toward the utilization of educational technology was assigned a value of 1 (strongly agree), and conversely a very unfavorable attitude toward the utilization of educational technology was assigned a value of 5 (strongly disagree). A value of 3 was assigned to a neutral or no opinion response. Highest possible score was 100, the lowest, 20.

To assess the reliability of the 24-item scale, a sample of faculty chairmen, who were a part of the target population, as well as several advanced graduate students who were in measurement and statistics classes responded. The total number sampled was 39. The results of Hoyt's reliability coefficient showed the 24-item scale to have a reliability of .73.

An item analysis was made using item correlations with a person's total score to obtain the relation of an item to the entire scale. From the correlation matrix four items were in question. These items exceeded a statistically significant level of .05 e.g., .10 to .30. It was decided to remove these four items to be administered to faculty and chairmen at the University of Florida. The 20-item scale contained 7 negative, 13 positive items.

Data Collection

Each department chairman first received a letter which briefly explained the nature of the project and then was contacted by telephone to obtain a personal interview. Only one chairman directly refused to be interviewed; three others never made themselves available. During the interview, an interview schedule was followed and the chairman was asked to respond to the self-administered attitude instrument. The percentage of response was 95%.

Faculty were asked to respond to the four-item, open-ended questionnaire and the attitude scale. Several procedures were used to solicit this information. Some chairmen who held frequent regularly scheduled departmental faculty meetings permitted us to attend these meetings and faculty responded to the instruments at that time. A few chairmen were willing to call a meeting specifically for this purpose. Response was high for both these groups. Other departments held meetings much more infrequently; in some instances only once a quarter. In these departments we attempted to gather data by placing questionnaires in faculty mail boxes or sending them through campus mail. This procedure was extremely ineffective and often produced only a one or two percent return. A total of 455 faculty responded to the questionnaire and attitude measure.

In summary, departmental chairman data which was collected through personnel interview is fairly complete. Faculty data ranges from partially complete to non-existent.

Data Analysis

Interview Schedule and Faculty Questionnaire

Responses to the interview schedule and questionnaire were categorized and a codebook for numerical analysis was developed. Nearly

400 separate categories were identified. A hierarchy of response categories was developed so that a response could be easily coded. These items were for the most part mutually exclusive, and little overlap occurred.

Each interview schedule and questionnaire was coded on optical-scan sheets by the interviewers. A canned computer program statistical package for the Social Sciences (SPSS) was utilized to compile the data by categories and departments. A portion of SPSS, "Crosstabs", was used to examine relationships among chairman responses to pre-established categories.

Attitude Scale

The 20-item, revised attitude scale was completed by 76 department chairmen, and 455 faculty members. Their results were analyzed separately. A program using Guttman's Reciprocal Averaging was used to obtain a score for each respondent. The scoring was reversed for negatively-phrased items. Responses were removed from the analysis if more than 5 of the 20 items were omitted. Fifteen responses had to be discarded, two of which were chairmen. The scores were used to select two groups of faculty and chairmen: those who had very favorable attitudes toward the utilization of educational technology, (e.g.), scores below 1 standard deviation from the mean; and those who had very unfavorable attitudes towward the utilization of educational technology,(e.g.), scores above 1 standard deviation from the mean. By selecting ± 1 standard deviation from the mean approximately 32% of the sample or about 16% of the sample at each end of the continuum (favorable vs. unfavorable attitudes) were identified.

Results

The results of the data analysis are presented in two sections. The first presents a university-wide profile of chairmen's responses to the interview schedule. The second section reports the analysis of the data as a classification of departmental chairmen and faculty as being open or closed to instructional innovation and change.

University-Wide Profile

These data represent a description of the department chairman responses to the study's interview schedule. It provides a university-wide profile of the following factors as perceived by chairmen:

(1) human and non-human resources available to departments;

(2) instructional problems and needs;

(3) types of faculty development or improvement activities used by departments; and

(4) emphasis given teaching, research and service in tenure decisions.

Table 1

Summary of Chairmen Responses
Identification of Most Important Non-Human Instructional Resources

Category	Chairmen (N=76) Responses	Percent of Total Responses
1. Library	26	7.2
2. Classroom Hardware[a]	128	35.4
3. Classroom Software[a]	131	36.2
4. Research and Field Equipment	35	9.6
5. Instructional Laboratories and Facilities	42	11.6
	362	100.0

[a] Classroom software is defined as instructional materials used in classroom settings; classroom hardware is defined as the equipment used in these settings.

Table 1 summarizes the chairmen's responses to the question: "What are the most important non-human instructional resources available to you and your staff for the improvement of instruction in this department? From Table 1, one can see that the 76 chairmen mentioned classroom software and hardware most frequently as being their most important non-human instructional resources. This finding suggests a university-wide interest in the continued and expanded use of educational technology.

Table 2

Summary of Chairmen Responses
Identification of Most Important Human Resources

Category	Chairmen (N=76) Responses	Percent of Total Responses
1. Faculty and Students	108	35.9
2. Staff	49	16.3
3. Resource Centers	73	24.3
4. Committees	7	2.3
5. Professional Assistance	41	13.6
6. Instructional Strategies[a]	23	7.6
	301	100.0

[a] Instructional strategies are defined as computer-involved instruction, gaming and simulation techniques, demonstration, etc.

Table 2 summarizes the chairmen's responses to the question: "What are the most important human resources available to you and your staff for the improvement of instruction in this department?" As one might expect chairmen felt that faculty and students were their most important human resources (35.9% of the responses). It is interesting to note that the second most important resources mentioned was resource centers (24.3%). Apparently chairmen perceive resource centers such as the Office of Instructional Resources as being an important resource for their instructional program. Only a small percentage of the responses were in the category of instructional strategies (7.6%).

Table 3 on page 12 provides a profile of the major instructional problems facing the University of Florida as perceived by university department chairmen. The major instructional problems appear to be: (1) too many students (27.7%), (2) workloads too large (27.7%), (3) lack of funds for faculty (26.3%) and (4) lack of classroom space (21.1%). Major problems facing the University of Florida do not center around a need for more equipment and materials. Instead, the greatest problem appears to be an overworked faculty. This would suggest that future instructional projects at the University should provide faculty with reduced workloads and released time so that they can plan, implement and evaluate their instruction improvement projects.

Table 4 on page 13 provides a profile of some of the major chairmen responses to the question: "At this time, what are the major instructional needs of your department?" The major instructional needs at the University of Florida appear to be: (1) more equipment and materials (46.1%), (2) more funds for faculty (34.2%), (3) more funds for facilities and hardware (25.0%) and (4) more classrooms properly equipped (22.4%). The high response for more equipment and materials does not fit with the problems mentioned in Table 3. However, it does fit with the importance chairmen had previously attached to classroom hardware and software as an important instructional non-human resource.

Table 3

Summary of Responses
Frequency Analysis of Instructional Problems

Category	Number of Responses	Percent of Chairmen
1. Space		
Lack of classroom space	16	21.1
Inappropriate laboratories	9	11.8
Lack of properly equipped classrooms	15	19.8
2. Equipment and Materials		
Inadequate	8	10.5
Not enough	12	15.8
3. Lack of Funds		
For facilities and hardware	14	18.4
For faculty	20	26.3
For graduate assistants	8	10.5
For support personnel	10	13.2
4. University-Wide		
Political concerns	5	6.6
5. Library		
Lack of appropriate materials	5	6.6
6. Faculty		
Lack of faculty cooperation	8	10.5
Workloads too heavy	18	27.7
7. Students		
Too many students	18	27.7

Table 4

Summary of Chairmen Responses
Frequency Analysis of Instructional Needs

Category	Number of Responses	Percent of Chairmen
1. Space		
More classroom space	14	18.4
Appropriate laboratories	10	13.2
Classrooms properly equipped	17	22.4
Appropriate scheduling of classroom space	8	10.5
2. Equipment and Materials		
Adequate materials	11	14.5
More equipment and materials	35	46.1
Better service from media centers	10	13.2
3. Funds		
For facilities and hardware	19	25.0
For faculty	26	34.2
For graduate teaching assistants	8	10.5
For support personnel	14	18.4
4. Faculty		
More faculty cooperation	6	7.9
Reduced workloads	6	7.9
5. Instruction		
Develop self-paced instructional materials	9	11.8

Table 5

Summary of Responses Describing Departmental Instructional Improvement Activities

Improvement Activity Category	Number of Responses	Percent of Chairmen
Conferences/Workshops	19	25.0
Informal Assessment	18	23.7
Colloquia/Seminars/Guest Lecturers	16	21.1
Faculty Meetings	15	19.7
Access to Chairman	12	15.8
Curriculum Development Meetings	9	11.8

Table 5 provides a summary of the chairmen responses to the question: "What activities are conducted by your department that focus on the faculty member's improvement of their own instruction?" Very few chairmen at the University of Florida have established instructional improvement programs of any substance for their faculty. This finding suggests that there is a need for instructional development programs in most departments.

Table 6

Summary of Responses Regarding the Weighting of Items for Tenure Decisions

Categories	Chairmen Responses[a]
Teaching	28
Research	33
Service	11
Varies with Workload	16
No Response	3
Other	2

[a] More than one response possible

Table 6 provides a summary of chairmen responses to the question: "Could you rank the following areas (1=Most Important) in terms of the weight they receive in this department in tenure awarding decisions?" It is interesting to note here that 28 chairmen placed teaching ability as the most important consideration in tenure decisions. This finding suggests the University of Florida may have a more positive climate for instructional innovations and change than is indicated by other data. Also the fact that a number of chairmen vary the criteria for awarding tenure suggests that chairmen are not locked into a reward system focused solely on an individual's research potential.

Classification of Departmental Chairmen and Faculty as Being Open or Closed to Instructional Innovation and Change

Data collected from departments was utilized to categorize department chairmen and their faculties in the following fashion:

(1) Type One Departments (Open to Changing Instructional Programs).

  (a) Chairman Open to Change

  (b) Faculty Open to Change

(2) Type Two Departments (Partially Open to Changing Instructional Programs)

  (a) Chairman Open to Change

  (b) Faculty Not Open to Change

(3) Type Three Departments (Partially Open to Changing Instructional Programs)

  (a) Chairman Not Open to Change

  (b) Faculty Open to Change

(4) Type Four Departments (Closed to Changing Instructional Program)

  (a) Chairman Not Open to Change

  (b) Faculty Not Open to Change

Classification of Chairmen and Departmental Faculties Using Attitude Scales

Attitudinal scores were used to select two groups of faculty and chairmen: those who had very favorable attitudes toward the utilization of educational technology (ET) e.g., scores below one standard deviation from the mean; and those who had very unfavorable attitudes toward the utilization of educational technology (ET), e.g., scores above one standard deviation from the mean. By selecting ± one standard deviation from the mean we would be dealing with approximately 32% of the sample or about 16% of the sample at each end of the continuum (favorable vs. unfavorable attitudes). Table 7 indicates the descriptive statistics obtained from the faculty and chairmen.

Table 7

Descriptive Statistics For
Faculty and Chairmen

Respondent	N	Mean	Standard Deviation	Reliability[a]
Chairmen	74	52.66	12.82	.72
Faculty	455	48.52	11.38	.83

[a] Represents Hoyt's reliability coefficient

From the results in Table 7, it was found that 15 chairmen had very favorable attitudes toward the utilization of ET (one standard deviation below the mean), and 15 chairmen had very unfavorable attitudes toward the utilization of ET (one standard deviation above the mean). As expected these 30 chairmen represented 40% of the sample. Seventy-four faculty had very favorable attitudes toward the utilization of ET (one standard deviation below the mean), and 80 faculty had very unfavorable attitudes toward the utilization of ET (one standard deviation above the mean). Again these 154 faculty represented 34% of the sample.

Because the attitude scale had such high internal consistency for chairmen (.83) the results from it were used in conjunction with the interview questionnaire data to make decisions concerning the "openness" or "closeness" of departments surveyed on the University of Florida campus.

The classification of department faculty groups as being either "open" or "closed" to change based on their attitudinal data was the next step. Here the data was incomplete, 21 department faculties were not surveyed. Not only was there a great deal of missing data in this phase of the work but there was also a low response from many departmental faculties.

It was decided that department faculties with 10% or more of their faculty scoring one or more standard deviations below the faculty attitudinal mean score would be classified as "open" faculties. Department faculty groups with 10% or more of their faculty scoring one or more standard deviations above the faculty attitudinal mean score would be classified as "closed" faculties.

Table 8 depicts the best classification of our sampled chairmen and departmental faculty groups that we were able to make using our conceptual scheme. It is clear to us that this is at best a very tenuous classification given the incompleteness of our data and the very low or no response rates of some of our department faculty groups.

The classification of departments as they appear in Table 8 was achieved by a comparison of the data gathered. Some of the departments sampled fell clearly into our original proposed categorization system (see Table 8). However, because of the lack of faculty data or conflicting information, we were unable to classify a large number of the sampled departments. Six departments were found to have chairmen and faculties who were open to change, four departments had open chairmen and closed faculty groups, and three departments had closed chairmen and faculty. None of the departments fell clearly into our Type Three Category.

Table 8

Classification of Sampled Departments According to Original Conceptual Scheme

Dept. No.	No. Dept. Faculty	% Dept. Faculty Surveyed
	Type One Depts: Open-Open	
104	28	71.4
105	8	87.5
221	6	83.0
301	9	88.9
304	29	16.2
309	14	100.0
	Type Two Depts: Open-Closed	
117	17	58.8
301	8	88.9
302	34	44.0
309	14	100.0
	Type Three Depts: Closed-Open	
	Type Four Depts: Closed-Closed	
315	30	76.0
317	15	76.0
411	11	72.0

Conclusions

Conclusions Related to the Research Study

The results of the study indicate that, in general, there tends to be a positive climate for the utilization of instructional technology at the University of Florida, as measured by the perceptions of departmental chairmen. Secondly, it is possible to make tentative selections of those departments which are most open to change and those which are most closed. Finally it is concluded that further work within specific departments should be undertaken to provide information which will substantiate or fail to substantiate the study's categorizations.

Conclusions Related to the Role of Institutional Research in Instructional Development

Quite clearly, the research conducted in this study was institutional in nature. It is the type of research that could be carried out by an Office of Institutional Research in a community college, 4 year private liberal arts college or university for the purpose of providing institutional data that would be useful in staff or instructional development programs.

Obviously, it will be necessary for us to gather additional data from department chairmen and faculty members before we can implement sound instructional development programs. However, we do feel that we have identified the first component of an emerging model that will link institutional research to instructional, faculty, and organizational development programs.

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Distribution of First-Time-in-College Students within the State University System

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The enrollment of first-time-in-college students at the University of Florida, Florida State University, University of South Florida, and Florida Technological University is analyzed according to the county of high school origin of the students. A model is built based upon the probability for enrollment at each university of high school graduates who immediately continue some form of education after their graduation. For counties within 50 miles of each university, the probability of enrollment drops off with the logarithm of the distance. Beyond 50 miles, distance has no significant effect on the probability.

An assumption of constant relative probability allows the calculation of enrollments when certain probabilities are forced to change. Probabilities must be adjusted when alternatives for the high school graduates are increased or decreased. Given the stated assumptions, enrollments at the four universities in the study have little effect on each other.

Distribution of First-Time-in-College Students within the State University System

Background

The intent of this project was to be able to predict the distribution of first-time-in-college (FTIC) students within the State University System of Florida on the basis of data at hand. It was hoped that the method would be able to account for ceilings on FTIC students and that it be general enough to allow for the prediction of enrollments at campuses which do not currently exist. An important criterion for the procedure was that the analysis should be based only on "projectable" parameters. That is, the student distribution should be dependent only upon parameters which we can predict separately. Another major objective of the study was to gain insight from FTIC patterns for application to other enrollment patterns, e.g., to analyze the transition from the community colleges to the State University System.

Special interest in FTIC students results from two observations. First, currently there are only two policies which restrict enrollments within the State University System to specific numbers, year after year. One of these addresses ceilings for FTIC enrollment at each of the appropriate universities. Second, the enrollments of FTIC students form the first input into a student flow model for enrollments at all levels within a university or the System. A student flow model for the State University System would require an understanding of the FTIC variable.

The study carried out by Carroll and Relles (1975) of the Rand Corporation (henceforth called the Rand study) investigated the use of a number of variables for predicting the transition. Among other things, it showed that ability as measured by the Florida Twelfth Grade Test and economic status had some bearing upon the decision of students to attend the University System. However, by the above criterion, student ability was omitted from direct consideration in the current study due to the difficulty of projecting average test scores or projecting other similar direct means of measurement.

The Rand study showed that ethnic group was relevant only for attendance choice relative to Florida A&M University (FAMU), which has been predominantly black. The same study found that the actual total FTIC enrollment at each of the universities and the distance between the university and the high school of the prospective student were relevant variables for describing the attendance of any given student. Enrollments and distances are readily measurable, and it appeared that these variables should be included in the current analysis.

It was expected that many variables could be accounted for by considering the percentage of high school graduates (by county) who continue their education after high school. "Education" here includes all post-secondary education, not just education within the State University System. The percentage of high school graduates who do not immediately continue their education ranges from about 90% to 20%. Use of the percentage as a proxy for other variables which would reflect the social norms, average student ability, etc., would be most useful if the variable was independent of the other parameters used in predicting the attendance within the State University System. This concern is addressed below, in the section on the analysis of 1974 and 1975 enrollments.

The analysis of previous years' patterns of attendance indicates that the patterns do change from year to year, apparently due to state economic conditions and other variables which are not constant in time. For example, between 1974 and 1975, when the number of high school graduates continuing increased by 6.0%, the Florida FTIC enrollment at University of Florida (UF), Florida State University (FSU), University of South Florida (USF), and Florida Technological University (FTU) increased only 1.8%. However, between 1973 and 1974, while the number of high school graduates continuing their education increased by only 5.8%, the total Florida FTIC enrollment entering UF, FSU, and FTU increased 12.3%. For this reason, the current study emphasized the relative distribution of students without great concentration upon the absolute magnitudes of the attendance.

Analysis of 1974 and 1975 Enrollment

It was decided to aggregate the potential students by county of high school origin, rather than by each high school of origin. The number of high school graduates continuing their education immediately after graduation is available yearly, by county, in the Department of Education publication "Florida High School Graduates." The choice of county rather than high school was based primarily upon the expectation that--relatively--the number of high school graduates by county would fluctuate less than the number of graduates by high school. The number of counties, 67, is large enough to provide "reasonable statistics." For the analysis, the universities accepting first-time-in-college students with the exception of FAMU were included. The four included are FTU, USF, FSU, and UF. The combination of the 67 counties with the four universities meant that there were 268 individual transitions to analyze.

The object was to predict the probability of high school graduates by county to attend each of the four given universities. By use of the percentage of graduates who immediately continue their education, the probabilities can be based on those high school graduates continuing. The parameters studied to explain the probability were the distance from the university (main campus) to the city of largest population within each county and the total first-time-in-college enrollment at the university.

In other words, the dependent variable was p, the number from each county enrolling at a given university in the fall quarter divided by the number from the county graduating from high school the same year who immediately continued their education. The independent variables were D, distance, and F, total first-time-in-college enrollment. Many different forms of the variables were attempted, for example, log $p/(1-p)$. However, the best fit using these parameters was found by a linear combination of log D and F to give p. (The situations where $D = 0$ were replaced by $D = 10$ miles.)

One insight into the analysis of the problem came in breaking the transitions from county to university into two cases which appear to have separate types of behavior. The first case, called the "near 50" case, consisted of the 31 situations in which the distance from county to university was less than 50 miles. The other case, the "far 50" case, included the remaining 237 transitions in which the county contributed to a SUS university more than 50 miles distant. The distance, roughly speaking, is commuting range. (Limiting distances of 30 to 80 miles were tried, and 50 optimized the F-statistic.)

The degree of a good fit (R^2) was calculated on the basis of the actual number predicted to enroll in a university from each of the counties, not on the probabilities themselves. The "near 50" case was found to depend almost completely upon the distance between university and county, not the FTIC enrollment of the university. The "far 50" case showed just the reverse, almost complete dependence upon the FTIC enrollment and very little improvement in fit with the inclusion of the distance. The equations found for the probabilities for each of the two cases, in 1975, with the associated R^2's, are as follows:

$$\text{near 50:} \quad p = 0.64128 - 0.40650 \log D, \; R^2 = 0.872$$

$$\text{far 50:} \quad p = -0.02635 + 0.000031344 F, \; R^2 = 0.949$$

It can be seen that the "far 50" equation explains almost all of the variation in the number of students from a county enrolling at a university. (Inclusion of the distance term increased R^2 by less than 0.0002.) While the "near 50" case does not have as high an R^2, still the equation explains nearly 90% of the variation with the single variable, distance. Inclusion of the FTIC term would increase R^2 by 0.0163 but with a standard error in the coefficient of half the value of coefficient. Results for 1974 were similar, but showed somewhat more dependence on distance in the "far 50" case.

The question may readily arise as to the selection of the first-time-in-college enrollment as an independent variable rather than some other enrollment or other number which would characterize the attractiveness of the university to the individual high school student. One can maintain the same coefficients as in the above expression for the "far 50" case, but require that the formulas give enrollments exactly for each of the four universities, and treat F as an unknown. Equivalently, one can say that the probability for attendance is a constant dependent only upon the university; then the constant can be derived from the data to give an exact fit for the enrollments associated with the "far 50" case. That is, for the "far 50" case we can set p = A, where A = 0.05588 for the University of Florida, 0.03989 for Florida State University, .01863 for the University of South Florida, and 0.00390 for Florida Technological University. A may be thought of as a long-distance attraction for the university, depending on such factors as space available and the university's reputation.

The result of calculations based on the above formulas is shown in Table 1. The first line is the actual 1975 enrollment from known Florida counties. The second line lists the enrollments as calculated.

Table 1
Florida FTIC Enrollment

	UF	FSU	USF	FTU
Fall 1975 Actual	2652	2119	1672	863
Calculated	2519	1917	1502	869

We conclude the section on analysis by returning to the question of the stability of the percentage of high school graduates who immediately continue their education. We desire this percentage to be insensitive to the opening of additional universities or the imposing of restrictions on the enrollment of existing ones. If the percentages were sensitive to changing conditions, one would expect the percentages to depend upon the current relative locations of the counties with respect to the universities. This does not appear to be true. In the four counties which house the four universities under consideration, the overall percentage of high school graduates in 1974 who did not continue their education was 54.82%, whereas the state overall average was 49.21%. That is, in the precise counties in which one would expect low percentages of students not continuing if distance were a strong influence on the percentage, the percentage is higher than the state total. As a more sophisticated test, we calculated the correlation between percentage of students not immediately continuing their education and log D (where the distance for the county was measured to the nearest university). The magnitude of the correlation was .063, low enough to believe that the percentages would not change significantly as the appropriate distances were changed.

FTIC Distribution After Opening a New University

Under the assumption of the validity of the formulas presented above and the assumption of "constant relative probability," to be described, one can predict the enrollments resulting from the initiation of a new university. As an example, one might hypothesize the opening of a lower-division SUS institution located in Miami. The probabilities derived above were calculated in the absence of the new institution. Hence all probabilities need to be adjusted to avoid requiring that the sum of the probabilities for all alternatives exceeds unity.

After the probability for any given student to enter the new institution changes from zero to a value greater than zero, the sum of the other probabilities for that student must become 1 less the new-institute probability. Mathematically, we let p_i be the former probability of the ith alternative, e.g., going out of the state, and p_i^1 be the new probability for the same alternative. In addition we let the probability of attending the new institution be p_0^1, and sum starting with i = 1. Then:

$$\Sigma\, p_i = 1$$

$$\Sigma p^1{}_i = 1 - p^1{}_0$$

We now assume that the probability of any alternative relative to any other alternative stays the same. That is, for any i and j,

$$p_i/p_j = p_i^1/p_j^1.$$

This assumption (constant relative probability) leads to the expression,

$$p^1_i/p_i = 1 - p_o^1 \quad \text{for } i \neq 0.$$

One might assume that the range of alternatives to which this equation applies should include, for consistency, attendance at the new institution. That is,

$$p^1_o/p_o = 1 - p^1_o$$

where p_o would be the probability calculated prior to making the adjustment. The results of some algebraic manipulation would show,

$$p^1_o = p_o/(1 + p_o).$$

Although intuitively the value of p_o^1 should be somewhat smaller than p_o, it is hard to justify the last expression. It will be used only as a lower limit.

It must be stressed that these results apply county by county. For example, the probability of entering FTU from Dade county, where the probability of attending the new institution is highest, will be reduced more than the probability of entering from Orange county. Consistent with intuition, it can be seen that opening a new institution will affect nearby universities (and colleges) more strongly than those far away.

For this calculation, the long-distance attraction defined in the analysis above as A was assumed to be the same for the new institution as for USF. The model predicted the Florida FTIC enrollment for the new university to be 3040, greater than at any of the other SUS universities. The lower limit on the prediction is 2602. Although FSU and UF are calculated to drop by more than 100, they can be assumed to stay at their limits. However, the opening would have reduced USF by 69 and FTU by 25.

Effect of Enrollment Ceilings on the Distribution

When policy limits the FTIC enrollment at given universities through designated ceilings, the result can be handled by the adjustment of probabilities. As enrollments are projected into future years, in which the number of continuing high-school graduates increases, the probability of entering an institution at which policy limits the enrollment must decrease. For example, since the fall FTIC enrollment at UF must remain about constant in the years ahead, the probability of attending UF from any county can be said to decrease according to the ratio of current enrollment divided by the enrollment which would be projected if there were no ceiling.

The interesting question is, what happens to universities which are not at their ceilings as the probability for enrollment at other universities is forced to decrease? To ask the question another way, to what extent are students deflected from one institution to another?

We use the assumption of constant relative probability and the reasoning developed for the opening of a new institution. The existence of the ceilings is said to impose a constraint. Again, we let p_i and p_i^1 equal the probabilities by county for the ith alternative, respectively before the constraint and after it. If the alternative corresponding to $i = o$ is constrained to a known value, then the algebra results in,

$$p^1_i = p_i \frac{1 - p^1_o}{1 - p_o} \qquad \text{for } i \neq o.$$

Again, probabilities are adjusted more in those counties for which the constrained probability is high.

Currently, in the SUS, both UF and FSU are at their FTIC ceilings. So students in future years must be deflected from those schools to others. For each 100 students not added to UF and FSU due to the ceilings, the model predicts that 3.45 will be added to USF and 1.95 added to FTU. That is, about 95% of the students who can not enroll due to ceilings will not enroll at any university covered by this study.

As an example of the effects of changing probabilities, the conditions of 1981 are used. Table 2 summarizes some results of computer calculations. It should be stressed that Table 2 does not constitute the complete FTIC enrollment projection for 1981. The only changes assumed between 1975 and 1981 are those stated explicitly. Column 2, based on uniform growth, assumes simply that the FTIC enrollment will grow at the rate of eligible students, state-wide. Those figures should be compared with the results of the model applied to the individual counties. Column 3 assumes "no deflection", i.e., no effect from the two universities at which limits are effective. If the deflection from those universities is included, 27 students are added to USF and 15 to FTU, as shown in column 4.

Table 2
Florida FTIC Enrollment

	(1) 1975 Calculated	(2) 1981 Uniform Growth.*	(3) 1981 Growth By County.* No Deflection	(4) 1981 Growth By County.* Deflection from Limited
USF	1502	1726	1728	1755 (+27)
FTU	869	998	957	972 (+15)

*Growth based on 12th Grade Average Daily Membership projections of Florida Department of Education.

The FTIC projection procedure described by Thomas (1975) as used at USF compares most closely with the current calculations which led to column 2. Thomas made additional adjustments for changes expected in (1) high school graduation rate and (2) percentage of high school graduates attending USF, while he combined all counties in projections of state 12th grade enrollment. He projected an increase in Florida FTIC enrollment at USF of 40% by 1981 compared to 1975. The major differences in his work to result in 40% versus 15% in the current study were, first, different 12th grade enrollment projections and, second, Thomas' extrapolation that the probability for enrollment at USF will increase by about 17%.

Summary

The enrollment of Florida FTIC students at UF, FSU, USF, or FTU can be explained with a simple model based on the enrollment probability, calculated by county, applied to high school graduates who immediately continue some form of education. Within 50 miles of a university the probability of enrollment drops off with the logarithm of the distance. Beyond 50 miles, distance has no significant effect on the probability.

An assumption of constant relative probability allows the calculation of enrollments when probabilities are expected to change. Probabilities should be adjusted by the addition of alternatives, e.g., the opening of a new institution, or the known reduction in the probability of one or more alternatives, e.g., the imposition of enrollment limitations. With the stated assumptions, enrollment patterns at the four universities of the SUS have little effect on each other.

Acknowledgment

The author is glad to acknowledge the computer assistance provided by Dan Gatsinos.

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IDENTIFICATION AND EVALUATION OF INSTRUMENTS IN INSTITUTIONAL RESEARCH

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Presented at the Florida Invitational
Conference on Institutional Research

Orlando, Florida
June 17-18, 1976

Identification and Evaluation of Instruments in Institutional Research

by

Stephan A. Lewis

As institutional researchers study the functions of their institutions, they usually rely upon data that is or could be collected through the normal administrative and records keeping processes. There are, however, occasional questions or problems that cannot be addressed using these data. When this occurs, the researcher turns to some other means of gathering data, and this in many cases takes the form of a special test or survey instrument. The researcher, therefore, needs to know what is available as well as what will be useful for his particular purpose.

Researchers at large institutions with extensive research capabilities can design and develop instruments well suited to the local research usage. Researchers at institutions with limited capacities must, however, look beyond their own walls for help. The problem for the researcher is to identify those instruments which are readily available and to choose the one best suited for the purpose at hand. It is the purpose of this paper to aid in the identification and evaluation of these instruments.

As used here, the phrase "readily available instruments" is intended to to include those instruments which are currently in print, designed to be used without need for local modification or adaptation, and accompanied by those kinds of materials and services generally unavailable at small to medium sized institutions and necessary for the proper utilization of the instrument. Instruments fitting this description are designed to measure several aspects of postsecondary institutions:

Institutional Climate or Environment

Surveys of institutional climate or environment take either or both of two approaches to the measurement of the characteristics of the institutions's students, faculty, administration, and physical plant which, when taken in combination, give the institution its uniqueness. The first of these approaches measures how the respondents (students, faculty, etc.) perceive qualities or subjective characteristics of the institution's environment. The instrument (the College and University Environmental Scales, for example) might ask the respondent to agree or disagree with the statement: "Students set high standards of achievement for themselves." These subjective observations or perceptions are usually grouped to yield scores for the institution on several scales. Each scale is intended to represent a dimension of an institution's environment; the score on a scale indicates that the institution is characterized by more or less of the attribute or group of related attributes represented by that dimension or scale.

The second approach, as in the Inventory of College Activities, arrives at the same type of information, but begins by asking respondents to report the occurance of certain objectively observable stimuli (events, regulations, facilities, etc.) that are supposed to be related to or to have an effect upon the institutional environment. Again, responses are grouped to yield scores on scales intended to measure the relative amounts of attributes that characterize an institution. Whatever approach is used, these instruments yield scores for institutions only. Individual respondent's scores cannot be obtained.

Surveys of Instructional Effectiveness

Surveys of instructional effectiveness also make use of either or both of these two approaches. In the one case, respondents, usually students, are asked for their subjective judgements on the amount of various attributes of instruction that existed in a particular course. The other approach, as in the Instructional Development and Effectiveness Assessment System, asks respondents to report the occurance of events that are supposed to be related to the quality of the instruction in a particular course. Again, as in the measures of environment, items on the instructional effectiveness measures are usually grouped to provide scores on several scales, intended to represent dimensions of instruction; scores are obtained only for individual course sections, the measures cannot yield scores for individual respondents.

Vocational or Occupational Interest Surveys

Vocational or occupational interest surveys are designed to yeild scores for individual respondents and are intended to be used primarily as tools to aid in the guidance and counseling of individuals such as students. Complilations of individuals' scores from measures of this type can yield useful information about the interests of the group to which the instrument is administered. Individuals responding to surveys such as the Kuder Occupational Interest Survey are asked to express preferences for a large variety of work activities that can be related to various occupational groupings. Alternatively, they may be asked to indicate their preferences from a variety of occupational titles, as in the Strong-Campbell Interest Inventory. In a manner similar to the two previously mentioned types of instruments, an individual's responses to items are grouped to yield scores on scales that are intended to represent the major dimensions of the world of occupations.

Surveys of Demographic and Historical Data

There are several questionnaires or surveys designed to gather demographic and historical data about the collective student body. These instruments may also survey students' opinions and attitudes about issues not specific to the institution. The attractiveness of these commercially available instruments is that local results may be compared to norms derived from nationwide administrations of the same instrument. Here again, scores may not be yielded for individual students.

General Achievement or Ability

Measures of general acheivement or ability are available for administration to students at all levels of postsecondary education, freshman through graduate. These instruments generally are designed to yield scores for individual respondents on scales intended to be representative of general verbal and/or quantitative skills. Scores for individuals can usually be compiled to produce information about the general ability of the group tested, and some instruments are supplied with norms for the purposes of reference. Unfortunately, there does not appear to be any one instrument that would be suitable for a pretest-posttest type experiment over the two or four year educational experience.

Specific Abilities or Achievement

Instruments designed to measure specific abilities or achievement are legion. The use of this type of measure is slightly removed from the central thrust of institutional research and they are therefore not considered in this presentation. Attention is directed to the extensive lists of instruments contained in the volume sponsored by the Council on Postsecondary Accreditation: Evaluation of Institutions of Postsecondary Education; An Annotated List of Instruments, and to Oscar Krisen Buros' Tests in Print II.

Multiple Purpose Packages

Finally, The American College Testing Program (ACT) and the Educational Testing Service (ETS) offer packages of instruments designed particularly for two year postsecondary institutions. These packages include instruments designed to aid in the collection of data about students' abilities and interests as well as demographic and historical information. Although these packages are designed primarily for guidance purposes, the analytical services associated with their use may make them useful for institutional research.

Evaluation and Selection of Instruments

Once the instruments that might suit his purpose are identified, the researcher must procede to evaluate those that best fit the restrictions of the given situation. Experts in measurement generally divide the criterea for the evaluation of an instrument into three categories: reliability, validity, and practicality. The relevant questions here is: what do these terms mean to a practicing institutional researcher?

Reliability

Reliability is the most commonly mentioned and should be addressed first. More importantly, it is the *primary* criteria, for the reliability of an instrument places an upper limit on its quality and worth. If it is not sufficiently reliable it is of little use no matter what its other qualities may be.

Institutional researchers use reliability to measure the stability of scores yielded by the measure. Instrument publishers should report reliability in the technical materials that are made available to the prospective user, and they should report their instruments' computed reliabilities as well as the nature of the group whose responses were used in the relibility studies. The publisher may offer indices of reliability computed for individual or group scores. If there is not reason to believe that some bias will exist within the local sample that would produce a constant error, group scores can be expected to have a higher reliability than that indicated for individual scores. In any case, the indices provided by the publisher are only meaningful to the local user if the local group of respondents is sufficiently similar to the froup or groups used in developing the instrument and computing its reported reliability coefficients.

For the researcher who wished to employ a published instrument, sufficient little administrative or analytical effort on the part of the researcher; another might be the opposite, inexpensive to purchase but requiring many hours for administration, scoring, and analysis.

The Instruments

With all these criteria in mind, the following list of instruments was compiled. The list is not intended to be definitive or exhaustive; it is intended to provide practicing institutional researchers a useful and ready reference to help identify currently available instruments. Several sources were helpful in compiling the list. They included Oscar Krisen Buros' Tests in Print II, the volume sponsored by the Council on Postsecondary Accreditation, the Test Collection Bulletin, and the Annotated Bibliographies of the Association for Institutional Research. Additionally, Dr. G. Emerson Tully of the Florida Board of Regents Staff sent a letter to many of the institutional researchers in the state of Florida, asking for lists of instruments with which they were familiar. Responses to this inquiry, combined with the search of the references mentioned, helped the author identify a large number of possible instruments.

From the list of possible instruments thus compiled, the author made an effort to select those most appropriate for institutional research and those that best fit the definition of "readily available instruments". It is hoped that this list will prove to be of value and use to those busy institutional researchers for whom it was prepared.

SELECTED INSTRUMENTS

Measures of Environment:

The College and University Environment Scale, Second Edition. (CUESII)
Institutional Research Program for Higher Education, Educational Testing Service. (IRPHE, ETS)

Developed by C. Robert Pace for ETS from the old College Characteristics Index, the CUESII measures students' perceptions of several aspects of the institutional climate or environment. The technical manual presents extensive evidence of reliability and construct validity. CUESII is not considered to be appropriate for use with freshmen or first term sophmores. ETS no longer offers scoring and reporting services; scoring may be accomplished locally. Booklets are $.35 each; answer sheets $.05 each.

Higher Education Measurement and Evaluation Kit. (HEMEK)
C. Robert Pace and the staff of the Higher Education Evaluation Program, Center for the Study of Evaluation, Graduate School of Education, University of California - Los Angeles.

For the institution willing to invest more labor than money, this kit offers great flexibility. It contains a large number of mini-scales, allowing for measurement of student perceptions, and for student reporting of the incidence of important environmental stimuli. For some of the mini-scales, testing has not been accomplished nor are norms available. For those scales tested, norming was done with college and university upperclassmen; use at two-year institutions may not be appropriate. Reported reliabilities range from fair to good. Use of the kit requires local choice of scales, reproduction of response sheets or booklets, scoring and analysis. The kit is free for the asking.

Institutional Functioning Inventory. (IFI)
Institutional Research Program for Higher Education, Educational Testing Service. (IRPHE, ETS)

The IFI is designed to measure institutional vitality, institutional goals and commitment to them as perceived by various constituent groups such as faculty, administrators, students and others. The technical manual contains extensive information indicating high reliability and construct validity on all eleven scales. Approximate costs of ETS supplied materials, scoring and reporting are $1.00 to $1.25 per respondent.

Institutional Goals Inventory. (IGI)
Institutional Research Program for Higher Education, Educational Testing Service. (IRPHE, ETS)

The IGI is an inventory or checklist of 90 institutional goal statements. Respondents (faculty, students or other constituent groups) indicate the degree to which they perceive each stated goal as an actual goal of the institution, and the degree to which they believe the stated goal should be an actual goal of the institution. Information on reliability and validity is not available. Costs are $1.60 per respondent for materials, scoring and reporting.

Inventory of College Activities. (ICA)
National Computer Systems. (NCS)

As designed by Alexander W. Astin, the ICA measures environment based upon environmental characteristics or stimuli that may be readily observed and reported by students, and which seem likely to have some effect upon student development. Evidence on reliability and validity presented in the ICA Manual should be carefully weighed. The ICA may be locally scored. NCS offers scoring and reporting for approximately $.70 per student respondent.

Student Reactions to College Questionnaire. (SRC)
Institutional Research Program for Higher Education, Educational Testing Service. (IRPHE, ETS)

Designed especially for use at two year institutions, the SRC is intended to measure students perceived concerns and how well those concerns are being met. Results are reported on all items; items are not grouped into scales. The users manual contains a short discussion on item reliability. Discussion of construct validity is not appropriate. Cost is $1.60 per student respondent for materials, scoring and reporting.

College Student Questionnaires. (CSQ)
Institutional Research Program for Higher Education, Educational Testing Service. (IRPHE, ETS)

The CSQ are three instruments:

Part I, intended for administration to incoming freshmen prior to the opening of classes, is designed to elicit demographic information and information about secondary educational experiences, family background, and student attitudes.

Part II, intended to be administrated to any group of students toward the end of the school year, emphasizes student attitudes and perceptions of institutional activities and functions.

A short Control Test for Academic Aptitude (CTAA) may be used in conjunction with either Part I or Part II.

Extensive evidence of scale reliability and construct validity is contained in the technical manual. The CTAA is only sufficiently reliable for use as a group measure. Booklets are $.35 apiece for each of Parts I and II; CTAA booklets are $.15 each; answer sheets are $.05 each. The CSQ must be scored locally; ETS scoring and reporting are no longer available.

Measures of Instructional Effectiveness:

Instructional Development and Effectiveness Assessment System. (IDEA)
Center for Faculty Evaluation and Development in Higher Education.

In addition to student perceptions of instructional effectiveness, this instrument is designed to measure characteristics of instruction as observed and reported by students. Reviews of this instrument are not yet available. Costs, on a sliding scale, begin at $.30 per student respondent for materials, scoring and reporting.

Illinois Course Evaluation Questionnaire. (ICEQ)
Measurement and Research Division, University of Illinois.

The ICEQ is designed to measure student attitudes toward the instructor and the instructional environment. Results reported by the test authors indicate good reliability and validity. Costs are $.15 per student response for materials, scoring and reporting.

Report of Course Activities, Attitudes and Characteristics.
C. Robert Pace, Higher Education Laboratory, University of California - Los Angeles.

This is a series of questionnaires to gather data from students and instructors concerning students' perceptions of instructional quality, faculty teaching preferences, and students' learning style preferences. Information on reliability and validity is not available. Single copies of the instrument are free, reproduction, scoring and reporting are intended to be accomplished locally.

Student Instructional Rating System. (SIRS)
Office of Evaluation Services, Florida State University.

This instrument, adapted from the instrument of the same name at Michigan State University, is designed to measure students' perceptions of the learning experience in the evaluated course. Research indicates that the instrument is very reliable and is very stable along its various scales. Materials, scoring, and very extensive reporting services are available on a cost recovery basis.

Student Instructional Report. (SIR)
Institutional Research Program for Higher Education, Educational Testing Service. (IRPHE, ETS)

This instrument was developed by John A. Centra from the Michigan State University Student Instructional Rating System. It is intended to measure students' perceptions of various aspects of instruction. SIR Report #3 contains an extensive discussion of item reliability and scale validity. Costs for purchase of forms and scoring and reporting start at $.35 per student response and decrease with increased usage.

Vocational Interest Measures:

Kuder Occupational Interest Survey. (KOIS)

Science Research Associates, Inc.

Also known as the Kuder DD, this instrument may be slightly more suitable than the SCII for use at institutions with vocational-technical emphasis. Reviews published shortly after the most recent revision in 1970, indicate some shortage of reliability and validity data. None the less, much research has been done using this instrument. The KOIS and the SCII are the two outstanding measures in the area of vocational interest; reported research indicates however that the two instruments do not yield correlatable results, and are therefore not equivalent. Costs are approximately $1.25 per student respondent for materials, scoring and reporting.

Strong-Campbell Interest Inventory. (SCII)

Consulting Psychologists Press, Inc.

The SCII is the latest in a long series of very widely used vocational interest inventories. Published in 1974, the new SCII combines previously separate forms for males and females. Early research indicates that the SCII will have high reliability and validity as did its predicessors. The SCII makes use of occupational titles and emphasizes traditionally college level occupations; it may therefore be more suitable for institutions with an emphasis on more traditional college curriculum.

Vocational Preference Inventory. (VPI)

Consulting Psychologists Press, Inc.

Designed primarily as a locally scored personality inventory, the VPI, also known as the Holland VPI, has been used more often as an interest measure. Although reviews indicate that reliability and validity may be no more than adequate, the VPI's strongest features are its briefness and low cost. Booklets are approximately $0.06 apiece, answer sheets $0.07 apiece.

Sources of Information About the Student Body:

Student Information Form.

Alexander Astin, Cooperative Institutional Research Program, Graduate School of Education, University of California - Los Angeles.

This instrument is administered to first time first term freshmen at a very large number of postsecondary institutions throughout the country. The information elicited includes biographic and demographic data and information about high school background, career and educational aspirations, and need for assistance. The form is altered each year to better sample attitudes toward current issues. Costs are $.40 per student respondent. Reporting includes national and local norms.

The College Entrance Examination Board offers reports to participating institutions based upon the Student Descriptive Questionnaire that is part of the CEEB Admissions Testing Program. The information covered includes biographical data, information about high school activities and performance, future educational plans, and needs for assistance and results of self-rating in several ability areas. Reports are available for those students who enrolled in the institution and for those who designated the institution to receive testing results but did not enroll.

The American College Testing Program offers several services associated with its Student Assessment Program:

Class Profile Service.

Participating institutions may receive compilations of information gathered through the Student Profile section, High School Grades section, and the Interest Inventory that are parts of the ACT Student Assessment Program. Compilations are available for those students who enrolled in the institution and for those students who designated the institution to receive assessment results but did not enroll. There is no charge for this service.

Institutional Self-Study Service.

Participating institutions may receive reports based upon data from the ACT Assessment Program and from the Self-Study Service instrument (including standard plus special local interest items) administered to the freshman class at the end of the first term. This service is available at cost.

The Basic Research Service and The Standard Research Service.

These two alternative services offer predictive statistics and information based upon high school data reported by students through the ACT Assessment Program in combination with students' first term grades reported by participating institutions. There is no charge for this service.

Measures of General Ability or Achievement:

College Qualification Test. (CQT)

Psychological Corporation.

The CQT is a battery of tests measuring mathematical skills, vocabulary and knowledge of general information. Data indicates that the battery has high reliability and good validity for selective admissions and predictive purposes. The tests may however, be dated with the most recent edition prepared in 1960. Booklets cost approximately $.25 each, answer sheets $.08 each. The tests may be scored locally.

Culture Fair Intelligence Test, Scale 3.

Institute for Personality and Ability Testing.

This instrument is intended to measure, through the use of both universally familiar and universally unfamiliar material, latent potential rather than learned skills. This goal has been only partially accomplished, as is indicated by only fair reliability and validity data. Scale 3 is the highest level form available in the Culture Fair Intelligence Test Series, and is probably suitable for use with undergraduate students. Costs are approximately $.18 apiece for booklets and $.06 each for answer sheets. The test is intended to be scored locally.

The Educational Skills Test, College Edition. (EST/CE)

CTB/McGraw-Hill.

Designed to assess the English and mathematical skills of entering freshmen at open-door colleges, the EST/CE battery measures the abilities and achievement that students bring with them to postsecondary institutions. Information on reliability and validity is not available. The battery may be hand or machine scored locally or scored by the publisher. Costs are approximately $.25 and $.17 apiece for the English and Mathematics booklets, and $.06 apiece for answer sheets.

Miller Analogies Test.

Psychological Corporation.

This test uses 100 verbal analogies to measure scholastic aptitude for graduate school. Reviews indicate that the instrument is very reliable; there is however, some question concerning the extent of its validity. The test may be hand or machine scored, and cost are determined by the local licensed administering center.

Graduate Record Examinations Aptitude Test. (GREAT)

Educational Testing Service.

The GREAT is the first part of a program designed to aid in graduate school admissions selections. The test measures the general verbal and mathematical abilities of college seniors with considerable reliability. Normally administered nationally at established centers, six times a year, graduate schools may apply for local and convenient administrations. Costs are $10.50 per student.

School and College Ability Tests, Series II.

Cooperative Tests and Services, Educational Testing Service.

The SCAT II is a series of tests available in alternate forms and designed primarily to predict academic success at the next highest scholastic level. The highest level for which the measures are suitable is the freshmen-sophmore level. Data indicates good reliability and fair validity. One strong feature is the short time needed for administration (approximately 40 minutes). The tests may be scored locally. Costs are $.35 for booklets, $.06 for answer sheets; ETS scoring is $.40 per student.

Undergraduate Assessment Program.

Educational Testing Service. (ETS)

This program, which is not yet available, will be aimed primarily at the second term sophmore level, and will take the place of ETS's Undergraduate Program for Counseling and Evaluation which was formerly the Undergraduate Record Examination.

Miscellaneous:

Career Planning Program. (CPP)

American College Testing Program. (ACT)

The CPP consists of a battery of interest, ability and background measures, designed especially for use at postsecondary vocational-technical emphasis institutions. Reviews indicate fair validity and reliability. The program is primarily oriented toward guidance but there are several research services associated with the program. Cost is $6.00 per student for materials, scoring and reporting. The test is administered locally.

Comparative Guidance and Placement Program. (CGP)

College Entrance Examination Board, Educational Testing Service.

This program consists of a battery of background, interest, general ability and special ability measures, oriented toward guidance of students admitted to two-year and vocational-technical institutions. The battery may be used in whole or in part, and several research reporting services are available. Reviews indicate that the program's various scales have good reliability and fair validity. The test is administered locally, and costs are $4.50 per student for materials, scoring and reporting.

Faculty Activity and Outcome Survey Instrument.

National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education.

This questionnaire form is designed to aid in bringing together data on the amount of time faculty members devote to each of various perceived activities and the budgetary accounts that support each activity.

SELECTED REFERENCES IN ORDER OF USEFULNESS TO AUTHOR

Tests in Print II, An Index to Tests, Test Reviews, and the Literature on Specific Tests, Edited by Oscar Krisen Buros, The Gryphon Press 1974. (TIPII)

The Seventh Mental Measurements Yearbook, Edited by Oscar Krisen Buros, The Gryphon Press, 1972. (MMY7)

These two publications edited by Buros are the best of all possible sources for information about testing and measurement instruments commercially available through approximately 1973.

Evaluation of Institutions of Postsecondary Education; An Annotated List of Instruments, Regional Accrediting Commissions of Postsecondary Education under sponsorship of the Council on Postsecondary Accreditation, May 1975.

An extensive although not complete list of instruments is contained in this publication. The criteria for inclusion or exclusion are not clear. Some instruments listed appear to be only marginally suited for institutional research. Particular attention is paid to specific area tests of achievement.

Test Collection Bulletin, published four times yearly by the Educational Testing Service, Princeton, New Jersey.

This periodical publication lists all additions to the Test Collection maintained by ETS under the sponsorship of ERIC. The publication also announces test reviews, instrument discontinuations, and relevant address changes.

Outcome Measures and Procedures Manual, Field Review Edition, Technical Report 70, Sidney S. Micek, Allen L. Service and Yong S. Lee, National Center for Higher Education Management Systems at Western Interstate Commission for Higher Education, May 1975.

Containing an extensive list of higher education outcomes and suggested questionnaire items or mini-instruments and some references to commercially available instruments for the measurement of the listed outcomes, this publication is the closest thing yet to an institutional research cookbook.

Handbook of Academic Evaluation, Paul L. Dressel, Jossey-Bass Publishers, 1976.

The discussion on the strengths and weaknesses of the use of measurement instruments that appears in the chapter on the measurement of environment is of particular interest.

Addresses

American College Testing Program
P.O. Box 168
Iowa City, Iowa 52240

Center for Faculty Evaluation and
Development in Higher Education
Kansas State University
Manhattan, Kansas 66506

College and University Programs
Educational Testing Service
Box 2813
Princeton, New Jersey 08540

College Entrance Examination Board
888 Seventh Avenue
New York, New York 10019

Consulting Psychologists Press, Inc.
577 College Avenue
Palo Alto, California 94306

CTB/McGraw-Hill
Del Monte Research Park
Monterey, California 93940

Graduate School of Education
University of California - Los Angeles
Los Angeles, California 90024

Institute for Personality and Ability Testing
1602 Coronado Drive
Champaign, Illinois 61820

Measurement and Research Division
University of Illinois
307 Engineering Hall
Urbana, Illinois 61801

National Computer Systems
Interpretive Scoring Systems
4401 West 76th Street
Minneapolis, Minnesota 55435

National Center for Higher Education
  Management Systems at
Western Interstate Commission for
  Higher Education
P.O. Drawer P
Boulder, Colorado 80302

Office of Evaluation Services
54 DIN
Florida State University
Tallahassee, Florida 32306

Psychological Corporation
Testing Division
304 East 45th Street
New York, New York 10017

Science Research Associates, Inc.
259 East Erie Street
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REGIONAL LEARNING NEEDS ASSESSMENT: PRACTICES, PITFALLS, AND PROSPECTS

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Presented at the Florida Invitational
Conference on Institutional Research

Orlando, Florida
June 17-18, 1976

Regional learning needs assessment: Practices, Pitfalls, and Prospects

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For a variety of reasons, colleges are increasingly interested in determining what educational services are needed to meet the growing demand for learning opportunities from working adults, part-time learners, and those who for various reasons cannot partake of traditional, on-campus educational offerings. Institutional researchers have for several years been aware of the impending dearth of available graduating high school seniors over the next fifteen years,[1] and the statistics which show the rapid growth in numbers and percentage in the population of those who are 25 to 44 years old--the adult group who have been found to be the most interested in further education.[2] But these officials are often uncertain as to what this means for their own college, how to plan for these changes, and what new types of educational delivery or student services may be needed.

In this circumstance the usefulness of field studies to reveal adult and nontraditional student educational plans, needs, and interests has gained in popularity. It is the primary purpose of this paper to briefly refer to several of these studies, review the utility of one survey strategy and methodology or another for particular purposes, and give an assessment of the prospects for better and more useful studies. It is hoped that this exercise will be of interest and material assistance to institutional

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Prepared for the Ninth Annual Florida Invitational Conference on Institutional Research, June 17-18, 1976, Orlando, Florida.

researchers and other officials whose responsibility it is to care for the educational needs of the future.

The rising popularity of learning needs surveys

Adult education has been viewed as a peripheral activity of the educational enterprise with a major purpose in bringing the adult population who were foreign-born or not well served in their youth up to a functional level of competence. Two early national surveys of adult participation rates and describing characteristics of adult learners were a U.S. Office of Education study in 1959, Participation in Adult Education,[3] and another conducted by the National Opinion Research Center in 1962 and reported by John Johnstone and Ramon Rivera in Volunteers for Learning (1965).[4] These early surveys provide the benchmark from which subsequent studies measure progress.

In the 1960s and 1970s adult education became somewhat submerged nationally in the nontraditional study movement, which expanded the concept of adult education to one that asserts that anyone who wants and needs further education has the right and ought to have access to an appropriate educational experience. The dramatic growth of the community colleges is one indication of this open learning philosophy, followed by the establishment of a host of experimental external and community-based degree programs monitored by the Office of New Degree Programs.[5]

The national counting process continues. The National Center for Educational Statistics began a series of triennial surveys in 1969, which confirm the rapid growth of adult education.[6] These surveys demonstrate that adult enrollment has increased by close to 15 percent each year since the mid-1960s. In 1972 the Educational Testing Service (ETS) contracted for a national survey of the potential market for continuing education with the Response

Analysis Corporation.[7] This study was based on a national probability sample of 2,515 households, from which 2,004 responses from 1,248 households were generated. The sample was then adjusted by several demographic factors to produce a final, weighted sample of 3,910 that was judged to be representative of the total U.S. population. This study estimated that 32 million adult Americans were engaged in some sort of postsecondary learning, and that millions more were potential new learners if appropriate services were available.

These national surveys set the pattern for a host of state, regional, and local institution studies of learning participation and needs assessment for a variety of purposes. The Office of New Degree Programs has evidence that there were at least 47 studies completed between 1970 and the present. In addition, at least 17 studies are currently under way, including statewide studies in Connecticut, Florida, Indiana, and Pennsylvania which will be available before the year is out.[8] By any measure, it is clear that field studies are a popular and useful means of forecasting demand and designing appropriate programs to meet it. The key question for planners is, what kind of study do we need, for what purpose, and who should do it? The answer to these questions lies in a careful look at the efficacy of various survey methodologies used in differing settings.

Types of field surveys

There are four basic types of field surveys used in these studies. By far the most common is an ordinary mail questionnaire. Mail surveys have the advantage of being a relatively inexpensive way of gathering data. If the population to be queried is well defined and of limited size, if no particular biasing effect would likely occur by the self-selection of respondents, and if the rate of return and and absolute number of usable returns relative to the universe population is adequate, then it is a satisfactory method to use. A number of random sampling and respondent selection techniques may need to be employed to avoid serious errors in interpretation. Even then, serious sampling errors can occur: response rates may be too low, self-selection biasing effects can be severe, and total sample size in relation to the universe may be too small and unrepresentative to provide meaningful results.

One must remember that in the mail survey technique, respondents are doing the selecting, not the researcher, no matter how carefully one sets up the strategy. In a study of a region where 10,000 adults reside, and 500 questionnaires are randomly mailed to residents using the telephone directory, very little can be scientifically inferred from a response of 150 questionnaires. The response rate, the total number of responses (1.5 percent of the universe), the biasing effect of a directory selection technique, respondent self-selection, and unknown sampling errors add up to a meaningless effort. Mail surveys are not generally satisfactory in large-scale sampling to determine characteristics of the universe population.

The same cautions apply to other wide-scattered, unfocused sampling techniques such as newspaper cut-out questionnaires, surveys left in supermarkets and other public places, requests for data using broadcast media, and the like.

A second general survey type is a telephone survey, very popular with polling firms for its relatively inexpensive, rapid-result, first-hand contact characteristics. Probably the majority of surveys that call for sample sizes of less than 1,000 are now conducted by telephone.

A major advantage to this method is the control this strategy allows the researcher in selecting respondents. By carefully analyzing the population characteristics of a given region, and selecting respondents by a variety of methods so as to accurately reflect the universe population, studies with a very small size can yield meaningful data about the total population. The methods used in these screening and selecting activities are extremely technical, and novices should exercise care in employing them without the guidance of an experienced pollster; but the power one gains through telephone surveying methodology is substantial. An accompanying effort must be included to control for that fraction of the population (often the poor and the transient) not available by ordinary telephone contact, and weighting the sample accordingly.

The speed and accessibility afforded by telephone contacting allows for another advantage: filtering. A narrow band of the population who share a common characteristic wanted in a survey can be systematically revealed by filtering out respondents in a larger sample who report that they lack the characteristic. For example, if females with at least two years of college but less than four years, who are working or have children at home, are the respondents required for a particular survey, a sampling design may call for telephone contacts with up to 1,000 households before a subsample of 100 persons having these characteristics is found. The 100 are then asked the entire survey, and the remaining 900 contacts can be eliminated after only a brief exchange on the telephone. Telephone appointments can be made with contacts who may not have time available at the hour of first approach, increasing the rate of response to a high level.

There are, however, certain disadvantages to telephone surveys. One is the limitation to a short set of questions that can be answered in simple replies. Also, it is easy to misinterpret certain replies over the telephone, leading to some over-or-under estimation of responses to difficult questions.

Telephone contacts that last beyond a few minutes begin to break down unless a specific appointment is made for a longer interview.

Another disadvantage to telephone surveys over a wide area is the cost that may be involved, and since the sample size is likely to be quite small in terms of the universe, it is easy to bias the results through sampling errors in the methodology of respondent selection or through faulty weighting of the data to conform to population characteristics. In certain areas of the country language problems can be a barrier to effective communication.

Finally, certain types of studies require respondents to choose from a range of choices preconceived by the researcher and presented to respondents in a written format. The deeper the interview, requiring careful weighing of conflicting feelings and motives, the less effective the telephone survey technique.

Interview polling by face-to-face question and answer is perhaps the best known method of gathering statistics about a sample of the population. The advantages are clear: in-depth questions are possible through face-to-face exchange of cards of printed response choices, and respondents are often more honest and careful in their replies when talking to a person than is usually the case in more remote and impersonal survey techniques. Moreover, lengthy surveys can be conducted by interview appointment, given lead time and resolute interviewers who are free to return to a sample household on several occasions.

A major disadvantage is the high cost of this method. Home-appointment interviews are the most expensive way to collect data, for interviewers' time must be covered, and travel to the selected points of contact, training expenses for interviewers, the cost of carefully selecting the towns, neighborhoods, and blocks to produce a sample conforming as closely as possible with the characteristics of the universe population all need to be paid for. Moreover, if the population contains several distinct ethnic groups, interviewers need to be carefully chosen and trained to reduce the social barriers that may limit the effectiveness of the interview technique.

Some educational researchers have found that one way of reducing the cost of an interview survey is to "piggy back" questions onto another survey that has been planned by another group, or to take advantage of a regular survey service that has flat per-question rates to customers who buy into the design offered by the service. Care must be exercised in these situations, however, since whether one "piggy backs" or purchases services, the sample size and survey design are not one's own, and may be inappropriate for the educational survey purpose. For example, an existing service may have a set sample size of 1,000 chosen to represent a state with an adult population of 10 million--not an unlikely sample size if carefully chosen, and may be adequate to reflect the entire state within a sampling error of less than three percent. But if an early question in the survey divides the sample into two or more response streams (sets of questions for subsamples of the respondents), the number of respondents in each stream may be too small to provide meaningful results that can be generalized to the whole population.

Finally a fourth type of field study is a mix of activities, including canvassing representatives of groups of potential learners, or preparing a study design which involves unobtrusive measures--that is, a methodology that collects data in indirect ways. One of the criticisms often heard of typical surveys that are designed to predict behavior of respondents is that the level of actual response is rarely as high as the data would have one expect. It appears that in some instances respondents are willing to agree with sentiments and opinions they perceive that researchers want to hear, and choose responses accordingly.

If a research question is fairly simple and direct, one can sometimes measure opinion in creative ways that do not involve asking the respondent any questions, but simply observing the behavior of a sample of appropriate people in a given situation, people "voting with their feet," for example. The rate of viewer response to an educational offering over broadcast television may be one indicator of the likely response to an educational program utilizing broadcast instruction. The "trial balloon" and the "stalking horse" are both variations on this methodology, often used in the political arena. Educational researchers with limited means but a creative cast of mind may find a number of instances were unobtrusive measures may be a useful and appropriate survey technique.[9]

The other approach -- direct contact with representatives of groups of potential new learners -- is one that is commonly used by adventurous community college personnel trying to be of greater service to their communities. It involves contacting employers, unions, retired person's associations, and other agencies which purport to represent an identifiable group. On occasion these contacts pay off, but according to the Director of the National Center for Educational Brokering, community learning needs are usually not tied in any direct way to organizations whose main purpose is not learning.[10]

The disadvantages of these methods are apparent. Usually, research needs are more complex and extensive than can be easily answered in a single test situation or a scattering of visits to community organizations. But in the fluid world of policy research, such irregular data, if convincingly prepared, will often be sufficient to buttress the arguments for new programs almost as effectively as a more conventional survey strategy.

Strengths and weaknesses

These sketches of types of survey techniques are not intended to be comprehensive, nor to carry with them all the considerations that must be made when undertaking a serious research design. For that one should contact either a professional polling firm, an experienced survey research specialist, or consult one or another of the excellent texts on sampling, surveying, and statistical analysis.[11] But the several types of survey methods are suggestive of the techniques which have been used by various research analysts who have conducted studies helpful to planners and policy makers at the state and local levels.

The requirements of the study and its intended uses usually imply the appropriate type field survey to use. It is important to realize, however, that all choices in survey research involve a trade-off among considerations such as cost, speed, simplicity, scientific accuracy, number and complexity of questions, sample size and composition, or level of research competence. A quick-and-dirty study may seem to be as effective as an elegant and expensive design, but the loss in quality may have some unforeseen consequences: critics can more easily discount the data by devastatingly exposing its shortcomings.

Professional polling firms are more likely to generate unimpeachable results (albeit shrouding their methodology somewhat) but often fail to follow through with the needed help in planning how best to use the information. It is our opinion that in most cases institutions which can draw upon their own staffs or knowledgeable educational consultants for studies of the kind presented here should do so, perhaps contracting for an interview or telephone survey with a polling firm, but maintaining control of the project "in house." In most cases this proves to be the most satisfactory.

The strength, then, of survey research is to enable planners and policy makers to answer basic questions about the need for, probable impact of, and opinions about new educational resources. With care in design, some very specific questions can be answered, such as: "How many adults in our city are likely to sign up in the first year of an individualized, part-time, home study program leading to the Bachelor of Liberal Studies degree; how much will they spend; how many hours a week can they study; and what supporting services will they need in order to successfully enter and remain in the program?" This sort of question is not untypical of those in other studies.

There are, however, weaknesses in relying exclusively on field polls to derive planning data. As we well know from political polls, opinions within the population change, often quite rapidly. Moreover, polls are usually of one-shot design not intended to give an idea of trends. Research on adult learners shows several typical characteristics which need to be taken into account in any planning situation: adults are generally interested in learning which has immediate utility (not for some future reward) and they will have shifting needs and demands year by year. The same person may need vocational skills one year, child development information the next, an introduction to the humanities and a third, and community affairs the fourth. Along with each of these felt needs the learner will want information and nondirective guidance, and perhaps financial aid. In all cases he or she will demand to be treated as an adult who has active managment over his educational experiences. Thus planners will need to arrange some systematic means of continually monitoring the size of the demand for various learning opportunities.

Field surveys also ignore the needs of manpower planning for industries, businesses, and trade unions. The need for skills and abilities for the economic well-being of a city may not be perceived by the population in general, and may not show up in an inventory of learning needs. Moreover, surveys are an inconstant tool with some of the most disadvantaged segments of the population who are not accustomed to polling and may not wish to express true feelings to an interviewer. Research studies show without a doubt that the generally well off, more highly educated, middle-class citizen is the one interested in more education; the poor, the undereducated, and the underprivileged either do not show up in the data or characteristically express a negative reaction to questions about further education.

Third, field surveys sometimes ignore the strength of resources an institution may possess in certain fields of study or at certain levels of education. If you are in a liberal arts college your faculty may view with alarm the poll results that show a great need for training in industrial trades.

Finally, survey research is a tricky business. Questions which seem perfectly clear to the researcher sometimes prove to be disastrously vague and ambiguous to many respondents. Questionnaire design is an art and a science in itself, and when used in a carefully developed strategy can yield useful, reliable results. Sloppy work in developing either one will lead only to embarrassment: garbage in--garbage out. Without either selecting proven questions borrowed from previously successful instruments, or carefully pretesting new questions on a sample of respondents, the researcher runs the considerable danger of confusing, or worse, offending his subjects. These respondents may either reject the whole effort or begin deliberately falsifying replies to get back at the offense. In either case, the study may be invalidated.

The business of choosing an approach methodology, selecting a sample, and determining what constitutes an appropriate sample size to yield what level of accuracy is needed for the study are all important questions that must be correctly answered in order for the study to result in maximum pay-off. If the choice rests on going with a locally developed strategy about which there is some question, or bringing in a survey research specialist to put it right, don't hesitate to bring in the specialist. The added cost will likely be well worth it.

Prospects for improved studies

It is clear that there are benefits to be derived from determining educational needs through survey research, but there are also drawbacks. Other efforts will also have to be employed if planners and policy boards are to have sufficient information at their command to plan for the future. The evidence is that sophisticated use of field surveys is increasing as educational planners become more accustomed to this research tool. Of the 47 studies referred to earlier, the last 20 are, in general, much better designed and executed than the first 20. We hope and expect that this trend will continue as we struggle to improve the methods of our profession.

Footnotes

[1] Lyman A. Glenny, *The 1960s in Reverse, A Constricting Crisis for Higher Education* (Berkeley: Center for Research and Development in Higher Education, University of California, 1973), mimeo.

[2] Data from U.S. Census Bureau cited by Lyman A. Glenny in "The Changing Milieu of Postsecondary Education--A Challenge to Planners." Keynote address delivered to the National Higher Education Management Seminar, October 16, 1972.

[3] U.S. Office of Education, *Participation in Adult Education* (1959), (Washington, D.C.: U.S. Government Printing Office, 1962).

[4] John W. C. Johnstone and Ramon J. Rivera, *Volunteers for Learning* (Chicago: Aldine Publications, 1965).

[5] John R. Valley, "Diversity Plus 2," *The College Board Review*, No. 96 (Summer 1975). Available as a reprint from the Office of New Degree Programs.

[6] Imogene Oaks, *Participation in Adult Education: Final Report, 1969*. National Center for Educational Statistics, Department of Health, Education and Welfare (Washington, D.C.: U.S. Government Printing Office, 1974).

Imogene Oaks and Loyal Greener, eds., *Participation in Adult Education, 1972*. National Center for Educational Statistics, Department of Health, Education and Welfare (Washington, D.C.: U.S. Government Printing Office, 1975).

Data from the 1975 survey collected but not yet published.

[7] Reported in K. Patricia Cross and John R. Valley and Associates, *Planning Nontraditional Programs: An Analysis of the Issues for Postsecondary Education* (San Francisco: Jossey-Bass Publishers, 1974).

[8] Unpublished material available from the Postsecondary Education Convening Authority (Kenneth Fischer, Director), Institute for Educational Leadership, Suite 310, 1001 Connecticut Avenue, N.W., Washington, D.C. 20036. This material was gathered at a conference of directors of state studies of adult education, held at Clearwater, Florida, January 26-28, 1976. Materials include "Bibliography of Ad Hoc Library," and a list of participants who are in the process of completing state studies. This list includes notations about the state studies in Connecticut, Florida, Indiana, Pennsylvania, and elsewhere. A synthesis of the conference written by James M. Heffernan of the Syracuse Graduate School of Education is also available.

[9] Eugene J. Webb et al., Unobtrusive Measures: Nonreactive Research in the Social Sciences (Chicago: Rand McNally, 1966).

[10] "The role of educational brokers in determining community education needs" by Francis U. Macy of the National Center for Educational Brokering (405 Oak Street, Syracuse, N.Y. 13203) to be published in Issues in Nontraditional Study No. 1, Office of New Degree Programs (New York: College Entrance Examination Board), forthcoming.

[11] There are a number of excellent texts on survey methodology. Perhaps the classic in the field is Frederick F. Stephan and Philip J. McCarthy, Sampling Opinions: An Analysis of Survey Procedures (New York: John Wiley & Sons, Inc., 1958).